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STANDARDS DETERMINATION DOCUMENT
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Duckwater Shoshone Tribe (2704608), Duckwater Cattle Company (2704617), Paris Livestock (2704538), and Tom and Ellen Gardner (2703175) Grazing Term Permit Renewals on the Duckwater (00701) and Monte Cristo (00614) Allotments

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BLM

NATIONAL SYSTEM OF PUBLIC LANDS

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Standards and Guidelines Assessment – Overview & Introductory Information

Standards and Guidelines for Grazing Administration were developed by the Northeastern Great Basin Area Resource Advisory Council (RAC) and approved by the Secretary of the Interior on February 12, 1997. In December 2000, the Northeastern Great Basin RAC approved Wild Horse and Burro Standards and Guidelines and they were incorporated into the existing rangeland health document. Vegetation Guidelines were approved in March 2004, and added as Appendix A. Standards and Guidelines reflect the stated goals of improving rangeland health while providing for the viability of the livestock industry, all wildlife species and wild horses and burros in the Northeastern Great Basin Area. Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the Standards.

This Standards Determination Document (SDD) evaluates and assesses livestock grazing management achievement of the Standards and conformance to the Guidelines for the Duckwater (00701) and Monte Cristo (00614) Allotments, in the Ely District BLM. This SDD evaluates rangeland health. This document does not evaluate or assess achievement of the Wild Horse and Burro Standards and Guidelines. This SDD addresses wild horses but does not evaluate wild horse habitat or populations. This SDD includes recommendations, based on findings, for future actions addressing wild horses in the Pancake Herd Management Area. This document does not evaluate or assess achievement of the Off Highway Vehicle Standards or conformance to the respective Guidelines.

Although the Duckwater Allotment occurs both in the Northeastern Great Basin Area and the Mojave-Southern Great Basin Area, this allotment will be assessed using only the Northeastern Great Basin Area RAC Standards and Guidelines. This is because the Duckwater Allotment as a whole more closely resembles the Northeastern Great Basin Area than the Mojave-Southern Great Basin Area making the Northeastern Great Basin Area RAC Standards and Guidelines the better measure for rangeland health. The Monte Cristo Allotment occurs entirely within the Northeastern Great Basin Area.

The Duckwater Allotment encompasses approximately 808,000 public land acres. The allotment occurs within both White Pine and Nye Counties. It surrounds Duckwater, Nevada. The western portion of this allotment borders the Battle Mountain BLM District and the eastern portion of this allotment borders Forest Service lands. The Duckwater Indian Reservation is within the Duckwater Allotment. A large portion of the Duckwater Allotment is within the Pancake Wild Horse Herd Management Area. This allotment is located within sage grouse, deer, elk, and antelope habitat. Portions of the allotment are within the Park Range Wilderness Study Area, the Blue Eagle Wilderness Study Area, and the Riordan's Well Wilderness Study Area. The eastern portion of the Duckwater Allotment borders the White Pine Wilderness Area and the Currant Mountain Wilderness Area. The Pancake Mountain Range is a major geographic feature in the area.

The Monte Cristo Allotment encompasses approximately 6,200 public land acres. The allotment occurs entirely within White Pine County, and is situated approximately 40 miles west of Ely, Nevada. The eastern portion of this allotment borders Forest Service lands. A majority of the Monte Cristo Allotment is within the Pancake Wild Horse Herd Management Area. This allotment is located within sage grouse, deer, elk, and antelope habitat. No wilderness occurs within the allotment. The nearest wilderness is the White Pine Range Wilderness, which is approximately ten miles away.

The Duckwater Allotment is separated into 12 grazing use areas according to a grazing decision issued for the allotment in June, 1995. Table 1 summarizes the nine use areas associated with the four grazing permits being evaluated at this time.

Table 1.Duckwater Allotment Use Area Summary

Use Area	Duckwater Shoshone Tribe	Duckwater Cattle Co.	Paris Livestock	Tom and Ellen Gardner
Bull Creek/North Railroad Valley		X		
Bull Corner/Poison Patch	X	X	X	X
Duckwater Hills	X	X		
Green Springs		X		
Little Smokey Valley			X	X
North Sand Springs Valley	X		X	
Pancake East Bench/Duckwater Valley	X	X	X	X
Pogues Station	X		X	X
South Sand Springs Valley	X		X	

The Duckwater Shoshone Tribe is permitted in six use areas: Bull Corner/Poison Patch, Duckwater Hills, North Sand Springs Valley, Pancake East Bench/Duckwater Valley, Pogues Station, and South Sand Springs Valley Use Areas. Together these use areas encompass approximately 347,000 acres.

Duckwater Cattle Company is permitted in five use areas: Bull Creek/North Railroad Valley, Bull Corner/Poison Patch, Duckwater Hills, Pancake East Bench/Duckwater Valley, and Green Springs Use Areas. Together these use areas encompass approximately 245,000 acres. Duckwater Cattle Company is also permitted on the Monte Cristo Allotment.

Paris Livestock is permitted in six use areas: Bull Corner/Poison Patch, Little Smoky Valley, North Sand Springs Valley, Pancake East Bench/Duckwater Valley, Pogues Station, and South Sand Springs Valley Use Areas. Together these use areas encompass approximately 498,000 acres.

Tom and Ellen Gardner are permitted in four use areas: Bull Corner/Poison Patch, Little Smoky Valley, Pancake East Bench/Duckwater Valley, and Pogues Station Use Areas. Together these use areas encompass approximately 363,000 acres.

According to a 1980 Memorandum of Understanding (MOU) between the Forest Service and the BLM, approximately 21,941 acres within the Humbolt National Forest boundary (see map, Appendix VI) forms a natural grazing unit with the adjacent BLM lands in the Monte Cristo Allotment and Green Springs Use Area of Duckwater Allotment. As a result of this MOU, 85 AUMs of livestock use tied to the Forest Service lands have been added to the BLM grazing permit for Duckwater Cattle Company and administration of these AUMs has been transferred to the BLM.

Together, nine of the twelve grazing use areas of the Duckwater Allotment will be evaluated in this SD. The Broom Canyon/South Railroad Valley, Ike Springs/Ike Bench, and Red Mountain Use Areas will not be evaluated. These areas were evaluated and assessed in 2007 associated with the grazing permit renewals for Norma Bradshaw and R.W.D. Currant Creek L.L.C. Those 21,941 acres of Forest Service lands under the MOU with BLM are also not evaluated. The Monte Cristo Allotment is not divided into grazing use areas.

The permit renewal project proposals for the above four grazing permits on the Duckwater and Monte Cristo Allotments were presented to a BLM interdisciplinary (ID) team during October, November, and December, 2008. At these meetings the ID team discussed the known resource issues and concerns on the allotments.

An assessment of the rangeland health has been conducted during the permit renewal process. Standards for Rangeland Health have been reviewed and evaluated by the BLM ID team for the Duckwater and Monte Cristo Allotments. The interdisciplinary team (consisting of Rangeland Management Specialists, Wildlife Biologist, Weeds Specialist, Soil/Water/Air Specialist, Wild Horse Specialist, Wilderness Specialist, and others) individually or collaboratively utilized several scientifically based documents and official publications to complete the assessment. These documents include the Western White Pine County and Northeastern Nye County Soil Surveys (USDA-NRCS), Rangeland Ecological Site Descriptions (USDA-NRCS 2003), Interpreting Indicators of Rangeland Health (USDI-BLM et al. 2005), Sampling Vegetation Attributes (USDI-BLM et al. 1996), the Nevada Rangeland Monitoring Handbook (USDA-SCS et al. 1984), Utilization Studies and Residual Measurements, and the National Range and Pasture Handbook (USDA NRCS 2003). The interdisciplinary team also used rangeland monitoring data, electronic data files, maps, professional observations, and photographs to evaluate achievement of the Standards and conformance with the Guidelines. A complete list of references is included in Appendix IV to this SD.

Rangeland monitoring is conducted at key areas and representative study sites in the term permit renewal area. The key areas and study sites have been selected based on accessibility, soil mapping units (SMU), representative rangeland ecological sites, livestock use patterns, and permittee input. The term permit renewal area has been monitored for vegetation condition and rangeland health periodically since the 1960s. The primary evaluation period for this Standards Determination Document is considered to be from 1999 through 2008. "Current livestock grazing management practices" are considered to be those practices implemented during this period. Some data prior to 1999 is also considered in this SDD. All scientifically based documents and rangeland monitoring data are available for public inspection at the Ely District Office during business hours.

PART 1. STANDARD CONFORMANCE REVIEW

The Standards Conformance Review will proceed by use area:

DUCKWATER ALLOTMENT

1. BULL CREEK/NORTH RAILROAD VALLEY USE AREA
2. BULL CORNER/POISON PATCH USE AREA
3. DUCKWATER HILLS USE AREA
4. GREEN SPRINGS USE AREA
5. LITTLE SMOKY VALLEY USE AREA
6. NORTH SAND SPRINGS VALLEY USE AREA
7. PANCAKE EAST BENCH/DUCKWATER VALLEY USE AREA
8. POGUES STATION USE AREA
9. SOUTH SAND SPRINGS VALLEY USE AREA

1. BULL CREEK/NORTH RAILROAD VALLEY USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

☐ Achieving the Standard
☐ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:

☐ In conformance with the Guidelines
X Not in conformance with the Guidelines

Livestock As A Causal Factor:

X Livestock are a contributing factor to not achieving the Standard
☐ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion: **Not achieving the Standard, not making significant progress towards**
Rangeland monitoring data and professional observations indicate that only one of the six key areas is meeting the vegetative cover standard on the Duckwater Allotment, Bull Creek Use Area (See Appendix I, Table 1.4-1). Ecological condition studies and cover by composition studies, as well as observed apparent trend and notes from utilization studies indicate that vegetative production and composition are also inappropriate for the ecological sites. Based on low production, above recommended utilization and the 12 year precipitation index, litter is not appropriate to site potential and is less than adequate to protect soils and recycle nutrients. Far too many shrubs are present, with the lack of a desirable understory of herbaceous native grasses

and forbs. The Ely Distirct Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum when a healthy herbaceous understory is present (with deeper rooted cool season native perennial bunchgrasses) to protect soils. Invasive annual species, including cheatgrass and halogeton, are common in this use area, biological crusts are largely absent, and many fine textured soils are susceptible to wind or water erosion, or the loss of good soil structure. Severely degraded rangelands occur in both Lampson and Freeland Canyon, where halogeton dominates and other invasive species grow. These canyons occur in the north portion of the Bull Creek Use Area.

At times during the evaluation period, key forage plant method utilization has been in conformance with the Guidelines for Rangeland Health, has been within the range that scientific literature and experience indicates should allow for recovery, and has been in accordance with Nevada Rangeland Monitoring Handbook Guidelines. Utilization has also at times been in conformance with the new Ely District Resource Management Plan (August, 2008) and the June 1995 Grazing Decision. However, utilization by all herbivores has also been recorded and observed to be heavy and severe which has impacted soil quality.

Significant progress is not being made towards achievement of the Upland Standard because movement towards achieving the Upland Standard is not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the appropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of native vegetation cover, the risk of invasive species spread, risk of erosion and loss of soil structure, and heavy or severe utilization at times, the soil resources lack much resiliency or capability to maintain or improve in this use area.

Key area DW-02 occurs on the lower alluvial fan of the Bull Creek Bench about five miles west of Blackrock Spring (Forest Service lands). This key area was established in 1989. It occurs on an Armespan-Cliffdown-Candelaria soil association (3644; NRCS 2002) with a Loamy 5-8" P.Z. ecological site (029XY017NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for this Loamy site is 15-25 percent. Monitoring data indicate that this key area has a vegetative cover of 6 percent and a litter cover of 3 percent (Table 1.4-1). Few cryptogamic crusts were present.

Key area DW-24 occurs in Freeland Canyon on a winterfat dominated salt desert shrub site. This key area was established in 1993. It occurs on a Linoyer very fine sandy loam (3972; NRCS 2002) with a Silty 8-10" P.Z. ecological site (028BY013NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for this site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 11 percent and a litter cover of 2 percent. However, halogeton is common in the area. A fine textured soil susceptible to erosion is present. The site was observed to be droughty, with none to very few biological crusts present. Indian ricegrass was present only under shrubs.

Key area DW-29 occurs on the alluvial fan of the Bull Creek Bench off Vanover Spring Road in salt desert shrub range. This key area was established in 1989. It occurs on an Armespan-Cliffdown-Candelaria soil association (3644; NRCS 2002) with a Coarse Silty 5-8" P.Z. ecological site (029XY042NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for this Coarse Silty site is 15-30 percent.

Monitoring data indicates that this key area has a vegetative cover of 6 percent and a litter cover of 29 percent. Halogeton and Russian thistle are common in the area, as is cheatgrass.

Key area DW-31 occurs on the alluvial fan of the Bull Creek Bench in the very south of the area in salt desert shrub range. This key area was established in 1993. It occurs on an Armespan-Cliffdown-Candelaria soil association (3644; NRCS 2002) with a Coarse Silty 5-8" P.Z. ecological site (029XY042NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for this Coarse Silty site is 15-30 percent. Monitoring data indicate that this key area has a vegetative cover of 10 percent, a litter cover of 8 percent, and a rock cover of 1 percent. The soil was loose but not trampled or compacted. Some biotic crusts were present under edges of shrub canopies. Sign of horse, cattle, and antelope use.

Key area DW-33B occurs on a typical area of salt desert shrub on the alluvial fan between Lampson & Freeland Canyons. This key area was established in 2001. It occurs on a Sodhouse-Palinor soil association (1821; NRCS 1998) with a Coarse Silty 6-8" P.Z. ecological site (028BY084NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for this Coarse Silty site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 5 percent and a litter cover of 11 percent. The soil was not trampled or compacted. Occasional black biotic crusts were present between shrubs.

Key area DW-34 occurs in a winterfat dominant area of salt desert shrub range about two miles south of Bull Creek reservoir. This key area was established in 1996. It occurs on an Armespan-Cliffdown-Candelaria soil association (3644; NRCS 2002) with a Coarse Silty 5-8" P.Z. ecological site (029XY042NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for this Coarse Silty site is 15-30 percent. Monitoring data indicate that this key area has a vegetative cover of 11 percent and a litter cover of 4 percent. No biotic crusts were present. The soil was observed to be loose, but not trampled or compacted. This is an area of older age class winterfat plants that are pedestalled. The soil is erodible. No desirable native grass is present and few new winterfat seedlings have been observed over the years. Cheatgrass and mustard are common in the area. Observed apparent trend in March 2005 was downward.

Standard #2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Conclusion: **Not Applicable**
This Standard was not evaluated since there are no public land riparian systems present in the Bull Creek Use Area.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- ❖ Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:

□ In conformance with the Guidelines
X Not in conformance with the Guidelines

Livestock As A Causal Factor:

X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion: **Not achieving the Standard, not making significant progress towards**
Vegetation cover studies, ecological condition studies, frequency trend studies, observed apparent trend, utilization, photographs, and professional observations indicate major portions of the Bull Creek Use Area are not achieving the Habitat Standard, due to inappropriate plant composition, production, and structure at key areas and the risk of further expansion of halogeton, cheatgrass, and other invasive annuals into native plant communities. The invasive annuals halogeton and mustard are abundant throughout the area. Cheatgrass is also common in native range. Russian thistle is also present in native range and along roadways. Soils are not stable and are susceptible to erosion, loss of soil structure, and further invasive species spread.

Vegetative production is lower than expected across the use area. All four key areas (DW-02, 24, 29, 31) in 2008 were producing less than expected compared to site potential for an unfavorable year (Tables 1.5-1 through 1.5-4). DW-29 and DW-31 were producing far less than expected. Ecological condition studies at DW-02 in 1991 and 1992 also showed far less production than expected for an unfavorable year. Apparent trend as recorded on the range inventory worksheets for the ecological condition studies was declining at all four areas studied (DW-02, 24, 29, and 31).

Productivity along with plant vigor have generally been unfavorable throughout the area during the evaluation period, as also ascertained from the precipitation data gathered for this analysis combined with notes from utilization forms. The crop year precipitation data (Table 12.1) shows that of the last 12 years, 10 have been below the long term norm of 8.44 inches for the crop year (September – June). Many of the years have been far below normal. This represents drought conditions during which native plant community production is unfavorable. The U.S. Drought Monitor (National Drought Mitigation Center – NDMC) which was summarized on February 3, 2009 showed eastern Nevada in a severe drought (D2). This severe intensity classification (D2) has been common in eastern Nevada.

Percent vegetation composition by weight shows that shrubs are higher than expected while grasses and forbs are lower when compared to the historic climax plant community (HCPC) in the ecological site description (ESD). These sites have transitioned to shrub dominance and lack a desired native perennial grass and forb component, indicating a transition to a woody shrub dominant state that has lost resilience and is susceptible to further degradation and invasive species spread. Shrubs currently compose 95%, 77%, 100%, and 97% of the vegetative communities at DW-02, 24, 29, and 31. Shrubs should compose 50%, 65%, 40%, and 40% at these sites according to ecological potential.

Those areas of the Bull Creek Use Area that have not already transitioned to halogeton dominant or cheatgrass dominant ranges exhibit a moderate potential to be converted to non-indigenous halogeton dominated range or cheatgrass dominated range. This is based on professional observations, the monitoring studies, and information presented in the weed risk assessment (Appendix III).

Vegetation structure (sometimes referred to as vegetation "architecture") is inappropriate in the Bull Creek Use Area to the extent that certain key areas and other areas are in a shrub dominant state with a native grass and forb component that is below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking or absent. Also, young plants of the more favorable native grasses and forbs have generally not been present. Drought, inappropriate soils, heavy utilization, lack of live vegetative cover, lack of grass or forb seed production, and lack of residual forage have combined to prevent new seedling establishment. Vegetation distribution over the Bull Creek Area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

Vegetation nutritional value has not been monitored. However, nutritious, palatable plant species are generally considered to be present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key species production has generally been below desired objectives. In general, browse species (shrubs) are sufficiently high in protein to satisfy animals' nutritional requirements, but they are low in energy values. A few species (notably the *Artemisia sp.*) contain near-adequate amounts of phosphorous. Grasses, on the other hand, have sufficient digestible energy, but are low in protein and phosphorous (Cook et al. 1954). A suitable diet is available where shrubs and grasses are found in direct association or in adjacent plant communities. Based on the lack of native cool season perennial grasses in this area, vegetation nutritional value is less than desired.

Significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the appropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of vegetation production, lack of appropriate cover, lack of appropriate structure, and the risk of invasive species spread, the vegetative resources lack much resiliency or capability to maintain or improve in the term permit renewal area.

Utilization levels have often been slight to moderate across the use area, however several high and severe levels have been measured (see Appendix I, Table 1.3-1). This indicates that livestock and wild horses are contributing factors to not meeting the Standard, however this is also related to other issues or conditions.

The Vegetation Guidelines (Appendix A to the Standards and Guidelines) Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands state that "Communities will exhibit or be progressing toward a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in the Bull Creek Use Area.

2. BULL CORNER/POISON PATCH USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X **Not achieving the Standard, not making significant progress towards**

Guidelines Conformance:

□ In conformance with the Guidelines (See Part 3. Guideline Conformance Review)
X **Not in conformance with the Guidelines**

Livestock As A Causal Factor:

X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion:

Standard not achieved. Vegetation cover studies at Key Areas DW-20 and 25 (Silty 8-10" sites) show live vegetative cover far less than expected for the ecological site (Table 2.4-1). No biological surfaces are present at these sites and the areas have been trampled, with lots of hoof action on sensitive soils. Key Area DW-40 also shows live vegetative cover less than expected for the site, however biological surfaces are present and no trampling was observed. The amount of ground litter varied from 8 feet at DW-20 to 17 feet at DW-25 (This is a linear measurement along a 100 foot tape placed near the ground surface). Key species utilization has varied during the evaluation period from slight to severe. Professional observations recorded on utilization transect forms often indicate dry, droughty native cool season perennial bunchgrasses of poor vigor. Frequency trend data indicates that Key Areas DW-25, DW-20, and DW-17 are or have been in a declining range trend. Halogeton, cheatgrass, and bud sagebrush have been increasing, while the more desired Indian ricegrass, winterfat, globemallow, and fourwing saltbush have

been decreasing. The type or composition of live vegetative canopy is inappropriate to site potential at DW-40, which has transitioned to a shrub dominant state with black sagebrush and rabbitbrush as the dominant species. Native perennial grasses and forbs are lacking. The Ely District Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum when a healthy herbaceous understory is present (with deeper rooted native cool season perennial bunchgrasses) to protect soils. Severely degraded salt desert shrub rangelands that occur in Poison Wash have contributed to past flooding on the Duckwater Indian reservation and other private lands. These lands have not healed over the years. At times during the evaluation period, key forage plant method utilization has been in conformance with the Guidelines for Rangeland Health, has been within the range that scientific literature and experience indicates should allow for recovery, and has been in accordance with Nevada Rangeland Monitoring Handbook Guidelines. Utilization has also at times been in conformance with the new Ely District Resource Management Plan (August, 2008) and the June 1995 Grazing Decision.

Significant progress is not being made towards achievement of the Upland Standard because movement towards achieving the Upland Standard is not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the appropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of native vegetation cover, lack of appropriate vegetation structure, the risk of invasive species spread, risk of erosion and loss of soil structure, and severe utilization at times, the soil resources lack much resiliency or capability to maintain or improve in this use area.

Standard #2. Riparian and Wetland Sites

Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

This Standard was not evaluated since there are no public land riparian systems present in the Bull Corner/Poison Patch Use Area.

Standard #3. Habitat

Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
□ In conformance with the Guidelines
X Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion:
The Habitat Standard is not achieved on native range, and significant progress is not being made towards achievement. Vegetation cover studies, ecological condition studies, frequency trend studies, observed apparent trend, photographs, and professional observations indicate major portions of the Bull Corner/Poison Patch Use Area are not achieving the Habitat Standard, due to inappropriate plant composition, plant cover, and plant structure at key areas and the risk of further expansion of halogeton, cheatgrass, and other invasive annuals into native plant communities. The invasive species halogeton occurs throughout the area. The invasive annuals Russian thistle and invasive mustards are also present in native range and along roadways.

Key Area DW-40 is shrub dominant according to ecological condition studies (Table 2.5). Composition by cover at key Area DW-25 is 95.7% winterfat and 4.3% halogeton. Composition by cover at Key Area DW-20 is 98.6% winterfat, 0.9% Indian ricegrass, and 0.5% mustard. Shrubs should compose from 35% to 65% of the plant communities in this use area according to the rangeland ecological site descriptions for the area. These sites have transitioned to shrub dominance and lack a desired native perennial grass and forb component, indicating a transition to a woody shrub dominant state that is susceptible to invasive species spread. The area as a whole exhibits a moderate potential to be converted to a non-native halogeton dominated range or cheatgrass dominated range. This is based on professional observations, monitoring data, and the weed risk assessment (Appendix III).

Vegetation structure is inappropriate in the Bull Corner/Poison Patch Use Area to the extent that certain key areas and other areas are in a shrub dominant state with a native grass and forb component that is below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking. Also, young plants of the more desired native grasses and forbs have generally not been present. This is confirmed by the frequency trend studies, notes from utilization forms, and professional observations. Vegetation distribution over the Bull Corner/Poison Patch Use Area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

Vegetation productivity has been recorded at below unfavorable year levels for Key Areas DW-05 and DW-40. Productivity along with plant vigor have generally been unfavorable throughout the area during the evaluation period, as can be ascertained from the precipitation data gathered for this analysis combined with notes from utilization forms. The crop year precipitation table shows that of the last 12 years, 10 have been below the long term norm of 8.44 inches for the crop year (September – June). Many of the years have been far below normal. This represents drought conditions during which native plant community production is unfavorable. The U.S. Drought Monitor (National Drought Mitigation Center – NDMC) which was summarized on

February 3, 2009 shows eastern Nevada in a severe drought (D2). This severe intensity classification (D2) has been common in eastern Nevada.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key species production has generally been below desired objectives (see also the discussion for nutrition on page 8).

Cheatgrass has increased in at least three key areas, as indicated by frequency trend studies. Cheatgrass was not present at the vegetation cover studies at DW-25, DW-20, and DW-40. Only a trace of this invasive annual was found at the two ecological condition studies DW-05 & DW-40. Cheatgrass is known to be present in the sagebrush range from 3 to 6 miles north of Nevada Governor's spring (T. 15N., R. 55E., Sections 4, 5, 6, 7, 8, 9). Cheatgrass production varies from year to year. The native plant communities of the Bull Corner/Poison Patch Use Area have not yet crossed a threshold to the "cheatgrass/annual grass infested state" where a significant amount of cheatgrass occurs in a shrub dominated community. The salt desert shrub range sites have become less resilient and resistant to invasive species spread.

Significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the appropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of vegetation production, lack of cover, lack of appropriate structure, and the risk of invasive species spread, the vegetative resources lack much resiliency or capability to maintain or improve in the term permit renewal area.

The Vegetation Guidelines (Appendix A to the Standards and Guidelines) Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands states that "Communities will exhibit or be progressing towards a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in Bull Corner/Poison Patch Use Area.

3. DUCKWATER HILLS USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

X Achieving the Standard

□ Not achieving the Standard, but making significant progress towards

□ Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X In conformance with the Guidelines
 Not in conformance with the Guidelines

Conclusion: **Standard achieved**
Rangeland monitoring data, professional observations, and photographs indicate that the Duckwater Hills Use Area is achieving the upland sites standard. Rangeland monitoring has not focused on this use area over the years, as it is used in conjunction with the Bull Creek Use Area on the east side (Duckwater Cattle Company), and used in conjunction with the Pancake East Bench/Duckwater Valley Use Area on the west side (Duckwater Shoshone). Rangeland monitoring has focused on these other use areas. Based on utilization data and vegetation cover data gathered in May and June, 2009 (page 115-118) and also professional observations over an 18 year period, canopy and ground cover are appropriate to ecological site potential. Soils are generally stabilized by volcanic surface fragments, live vegetation, and/or litter and biotic crusts. There is little to no plant pedestaling or surface soil erosion. Soils are not disturbed and there is no excess compaction or trampling of soils. Wild horse census flights and permittee input indicates cattle and wild horse use has generally been well distributed through the Duckwater Hills Use Area. Utilization studies accomplished through the evaluation period show key species use has often been moderate or less, which would contribute to a more appropriate amount of live vegetation canopy and litter. There are no broad significant areas of degraded or severely depleted range in this use area, although a small portion of the salt desert shrub range in the southwest portion of the area west of or northwest of the Duckwater Shoshone Reservation, and near the county highway, (about 40 acres) has become invasive species dominant. Some halogeton, the native annual metzelia, and cheatgrass occur in the middle portions of the Duckwater Hills. Monitoring data shows few invasive species present in this use area. Soils are thus more stable and resilient, more resistant to loss of soil structure and erosion, with an appropriate infiltration and permeability rate. Observed apparent trend is static at Key Areas DW-14 and DW-26, with some indication that desired species such as Indian ricegrass, bottlebrush squirreltail, and needleandthread have increased in occurrence.

Standard #2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Conclusion: **Not Applicable**
This Standard was not evaluated since there are no public land riparian systems present in the Duckwater Hills Use Area.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation

productivity; and vegetation nutritional value.

Determination:
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X In conformance with the Guidelines
□ Not in conformance with the Guidelines

Livestock As A Causal Factor:
□ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is related to other issues or conditions

Conclusion: **Not achieving the Standard, not making significant progress towards**
Line intercept vegetation cover studies, professional observations and photographs indicate that key areas and study sites within the Duckwater Hills Use Area are generally shrub dominant, indicating a plant composition inappropriate to ecological site potential. The herbaceous component of native grasses and forbs is below ecological site potential. The degree of shrub dominance is not severe. Plant production, plant community structure, and plant vigor have also been less than appropriate to site potential, especially in light of recent drought years. Plant production, plant community structure, and plant vigor were good in May, 2009 on the east side of the Duckwater Hills and fair on the west side. Based on professional observation and utilization monitoring accomplished for this area since 1991, the area as a whole exhibits a low rather than moderate potential to be converted to a non-indigenous halogeton dominated range or cheatgrass dominated range. The plant communities in this area exhibit some resilience.

Vegetation structure is inappropriate in the Duckwater Hills Use Area to the extent that key areas and study sites have transitioned to a shrub dominant state with a native grass and forb component that is below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking. Also, young plants of the more favorable native grasses and forbs have generally not been present. This is confirmed by utilization studies, professional observations, and photographs. Vegetation distribution over the Duckwater Hills Area as a whole is good, as indicated by topographic diversity, plant diversity, and the variation in soil mapping units and rangeland ecological sites.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key species production has generally been below desired objectives. (see also the discussion for nutrition on page 8).

Significant progress is not being made towards achievement of the Habitat Standard because the interdisciplinary BLM I.D. team felt there was not enough data available in regards to vegetative change or in regards to the current livestock management practices. However, herbivory use in

this pasture has been well distributed with no known areas of concentration. Water hauling has not occurred to the east of the ridgeline from 1999 – 2008. Very limited water hauling has occurred to the west of the ridgeline from 1999 – 2008. The vegetative resources have been observed to have some resilience and have the capability to maintain or improve in this use area. Current year's use of key forage species to May 22, 2009 on the east side of the hills and to June 4, 2009 on the west side of the hills was generally slight or less by both cattle and wild horses.

4. GREEN SPRINGS USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

☐ Achieving the Standard

X Not achieving the Standard, but making significant progress towards

☐ Not achieving the Standard, not making significant progress towards

Guidelines Conformance:

X In conformance with the Guidelines

☐ Not in conformance with the Guidelines

Livestock As A Causal Factor:

☐ Livestock are a contributing factor to not achieving the Standard

X Livestock are not a contributing factor to not achieving the Standard

X Failure to achieve the Standard is related to other issues or conditions

Conclusion: **Not achieving the Standard, but making significant progress towards**

Rangeland monitoring data and professional observations indicate that five key areas in the Green Springs Use Area display an amount of vegetative cover appropriate (DW-01, DW-18), or near appropriate (DW-46, 48, 51) to site potential (Table 4.4-1), however the type of cover is inappropriate in that native shrubs (winterfat, rabbitbrush) dominate these sites. The composition by cover table (Table 4.4-2) verifies the shrub dominance, as do the ecological condition studies. According to site potential these five key areas of salt desert shrub range should be producing from 20 to 55% native grass, 5 to 10% forbs, and from 35 to 75% shrubs. Current composition varied from 95 to 99% shrubs, and 0% forbs was recorded at all five key areas. Current composition of native grass varied from 1 to 4%. The native grass and forb component is below ecological site potential. The Ely District Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum when a healthy herbaceous understory is present to protect soils. Otherwise, soils are susceptible to wind or water erosion, loss of soil structure, and invasive species spread. The fine textured silty soils of the winterfat areas are especially susceptible. Biological crusts are generally present at the five key areas and no excess trampling or compaction of soils was observed. Approximately 80 acres of severely degraded rangelands

occur in the area of the water ditch that runs west from the Green Springs private ground, then south to the Bull Creek private ranch. Invasive annuals are prevalent throughout this depleted area.

Other information such as the low production at DW-01 and the 12 year precipitation index support the conclusion that litter is not appropriate to site potential and is less than appropriate to protect soils and recycle nutrients. Ecological condition studies show that plant community production has been below unfavorable year levels at DW-01, which was studied four different years (Table 4.5).

At times during the evaluation period, key forage plant method utilization has been in conformance with the Guidelines for Rangeland Health, has been within the range that scientific literature and experience indicates should allow for recovery, and has been in accordance with Nevada Rangeland Monitoring Handbook Guidelines. Utilization has also at times been in conformance with the new Ely District Resource Management Plan (August, 2008) and the June 1995 Grazing Decision. There is data from utilization studies from 2009, 2008 and 2002 showing generally moderate or less forage utilization in the area. This would tend to promote appropriate litter to help protect soils and recycle nutrients. However, utilization has also been recorded and observed to be heavy and severe, which has contributed to impacts to native ecological sites.

Significant progress is being made towards achievement of the Upland Standard because a grazing system is in place that defers cattle use until June each year in Green Springs Valley. Thus there is no livestock use during the critical growing period. Total plant community production data for Key Areas DW-18, 46, 48, and 51 is above unfavorable year levels, although winterfat and rabbitbrush shrubs dominate the production. Utilization data from 2008 is moderate or less. Utilization data gathered on March 17, 2009 in the east and northeast portion of the use area for yearlong use resulted in slight and light use of Indian ricegrass in black sagebrush and Wyoming sagebrush range. A very stable, gravelly soil characterized the two areas studied. Biotic crusts were abundant at both areas, and no invasive species were present.

Key area DW-01 occurs on a Heist silt loam (353; NRCS 1998) with a Coarse Silty 6-8" P.Z. ecological site (028BY084NV). This soil typically has a moderately rapid permeability. The approximate ground cover (basal and crown) for this Coarse Silty site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 18 percent and a litter cover of 7 percent. This is within the potential amount for the site.

Key area DW-18 occurs on a Palinor soil association (321; NRCS 1998) with a Silty 5-8" P.Z. ecological site (028BY018NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for this Silty site is 5-15 percent. Monitoring data indicate that this key area has a vegetative cover of 6 percent and a litter cover of 2 percent. This is within the potential amount for the site.

Key area DW-46 occurs on a Heist silt loam (353; NRCS 1998) with a Silty 8-10" P.Z. ecological site (028BY013NV). This soil typically has a moderately rapid permeability. The approximate ground cover (basal and crown) for this Silty site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 10 percent and a litter cover of 8 percent.

This is within the potential amount for the site. Some cattle trails were noted, but no excessive compaction.

Key area DW-48 occurs on a Palinor very gravelly loam (282; NRCS 1998) with a Coarse Silty 6-8" P.Z. ecological site (028BY084NV). This soil typically has a moderate permeability. The approximate ground cover (basal and crown) for this Coarse Silty site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 9 percent and a litter cover of 8 percent.

Key area DW-51 occurs on a Heist silt loam (353; NRCS 1998) with a Silty 8-10" P.Z. ecological site (028BY013NV). This soil typically has a moderately rapid permeability. The approximate ground cover (basal and crown) for this Silty site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 10 percent and a litter cover of 12 percent.

Standard #2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Conclusion: **Not Applicable**
This Standard was not evaluated since there are no public land riparian systems present in the Green Springs Use Area.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:
☐ Achieving the Standard
☐ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X In conformance with the Guidelines
☐ Not In conformance with the Guidelines

Livestock As A Causal Factor:
☐ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is related to other issues or conditions

Conclusion: **Not achieving the Standard, not making significant progress towards**
Rangeland monitoring data, professional observations, and photographs show that vegetation composition and structure are inappropriate to ecological site potential in this use area. Far too many shrubs are present in the salt desert shrub winterfat areas, with a corresponding lack of an herbaceous understory of native grasses and forbs to stabilize soils and contribute to a diverse healthy watershed. Vegetative structure is weighted in favor of older age class plants. Conditions have not been favorable for seedling establishment, so in this sense vegetation structure is inappropriate. Vegetation structure is inappropriate in the Green Springs Use Area to the extent that certain key areas and other areas are in a shrub dominant state with a native grass and forb component that is below ecological site potential. The shrub life form is over abundant and the native perennial grass life form and/or forb life form is lacking. Vegetation distribution over the Green Springs Use Area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

Plant community production has been below unfavorable year levels at DW-01 four different years. Plant community production has been above unfavorable year levels at four other key areas in the use area, however the production has been almost all shrubs (Tables 4.5-1 through 4.5-5). Productivity along with plant vigor have generally been unfavorable throughout the area during the evaluation period, as can be ascertained from the precipitation data gathered for this analysis combined with notes from utilization forms.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key species production has generally been below desired objectives. (see also the discussion for nutrition on page 8).

The Vegetation Guidelines (Appendix A to the Standards and Guidelines) Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands states that "Communities will exhibit or be progressing towards a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in the Green Springs Use Area.

The BLM interdisciplinary team determined that significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is not occurring at an acceptable level of rate and that wild horse populations above the AML are a contributing factor. A livestock grazing system is in place that defers cattle use until June each year in Green Springs Valley. Thus there is no livestock use during the critical growing period. Total plant community production data for Key Areas DW-18, 46, 48, and 51 is above unfavorable year levels, although shrubs dominate the production. Utilization data from 2008 is moderate or less.

5. LITTLE SMOKY VALLEY USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X **Not achieving the Standard, not making significant progress towards**

Guidelines Conformance:

□ In conformance with the Guidelines (See Part 3. Guideline Conformance Review)
X **Not in conformance with the Guidelines**

Livestock As A Causal Factor:

X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion:

Standard not achieved, and significant progress is not being made towards achievement.
Of six vegetation cover studies accomplished in the Little Smoky Valley Use Area, five studies detail live vegetative cover less than expected for the ecological site. Biotic crusts are present at four of these sites. No excess trampling or compaction of soils was found at any site. No cheatgrass was present at any site, however halogeton is common throughout the area both combined with native plants and occurring as pure halogeton meadows on completely degraded former desert shrub winterfat dominant areas. Halogeton has been estimated to be producing 50% of the current annual growth by weight of the plant community at Key Area DW-55 (Cockalorum Wash). Mustard was prevalent in the valley in at least 1994 and 2001. The invasive, annual weeds Russian thistle and bur buttercup also occur in the area. Frequency trend data indicates a static trend at Key Areas DW-15 and DW-19, with some indication that from 1993 to 1999 Indian ricegrass has made a modest increase at one location and halogeton has decreased at two locations. Observed apparent trend indicates a static trend at DW-19 through the 1990s. The type or composition of live vegetative canopy is inappropriate to site potential at Key Areas DW-15, 19, and at four study sites that show from 91% to 100% shrubs. This is confirmed by many range tours with grazing permittees over the years when observations have been made that broad areas of thousands of acres in this area are monocultures of Wyoming sagebrush or black sagebrush. According to site potential these areas should be producing from 30 to 50% native grass, 5% forbs, and from 45 to 65% shrubs. Native perennial grasses and forbs are lacking. The Ely District Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum or desirable when a healthy herbaceous understory is present to protect soils.

The shrub dominance has been aggravated by drought. The area was closed to livestock grazing along with three other use areas in the Duckwater Allotment in August, 2000 due to drought. The drought closure was lifted in June, 2001. Several negative factors have led to the silting in and loss of water storage capacity of the Bartholomae Reservoirs located in the main Smoky Valley drainage. These lands have not healed over the years. Key species utilization has varied

during the evaluation period from light to severe. Year long use has often been heavy or severe, by wild horses, cattle, or both.

Significant progress is not being made towards achievement of the Upland Standard because movement towards achieving the Upland Standard is not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the appropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of native vegetation cover, the risk of invasive species spread, and severe utilization at times, the soil resources lack much resiliency or capability to maintain or improve in this use area.

Standard #2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

This Standard was not evaluated since there are no public land riparian systems present in that portion of the Little Smoky Valley Use Area grazed by cattle or sheep.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
□ In conformance with the Guidelines
X Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

The Habitat Standard is not achieved on native range, and significant progress is not being made towards achievement. Vegetation cover studies, frequency trend studies, observed apparent trend studies, photographs, and professional observations indicate major portions of the Little Smoky Valley Use Area are not achieving the Habitat Standard, due to inappropriate plant

composition at key areas or study sites, inappropriate plant community production, inappropriate plant community structure, and the risk of further expansion of halogeton, cheatgrass, and other invasive annuals into native plant communities. The invasive species halogeton occurs throughout the area, both in serevely depleted former winterfat dominant sites and occurring mixed with native plant species. Cheatgrass also occurs in varying densities throughout the area. The invasive annuals Russian thistle, some mustards, and bur buttercup are also present, both in native range and along roadways. Severely degraded rangelands occur across hundreds of acres of land in Big Fault Wash, Snowball Creek Wash, East of Arambel Well, in the area of Cow Well, and in the main Little Smoky Valley Drainage. These lands have been serevely depleted and are dominated by invasive annuals. Little Smoky Valley is among the worst lands managed by the Ely District and Battle Mountain District BLM.

The area as a whole exhibits a moderate potential to be converted to a non-native halogeton dominated range or cheatgrass dominated range. Key Areas DW-15 and DW-19 are shrub dominant as well as Study Sites SS-1 through SS-4. Key Area DW-55 is at least 50% halogeton and Cockalorum Wash as a whole is heavily degraded. These sites have transitioned to shrub dominance and lack a desired native perennial grass and forb component, indicating that it is susceptible to invasive species spread and erosion. Shrubs should compose from 35% to 65% by weight of the plant communities in this use area according to the rangeland ecological site descriptions for the area. Current composition by cover varies from 91 to 100% shrubs (Table 5.4-2).

Vegetation structure is inappropriate in the Little Smoky Valley Use Area to the extent that key areas and other areas have transitioned to a shrub dominant state with a native grass and forb component that is far below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking. This is also true for the sickle saltbrush range site in the valley bottom near the old homestead. Also, young plants of the more desired native grasses and forbs have generally not been present. This is confirmed by utilization studies, professional observations, and photographs. The variation in vegetation distribution over the Little Smoky Valley Use Area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

Vegetation productivity has not been recorded through ecological condition studies. As ascertained from utilization studies, precipitation tables, drought monitoring, photographs, and professional observations, productivity along with plant vigor have generally been unfavorable throughout the area during the evaluation period. The area was closed to livestock grazing along with 3 other use areas in the Duckwater Allotment in August, 2000 due to drought. The drought closure was lifted in June, 2001.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key species production has generally been below desired objectives. (see also the discussion for nutrition on page 8).

Significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is just not occurring in terms of both

vegetative change or the current livestock management or wild horse populations above the apprpropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of production, and the risk of invasive species spread, the vegetative resources lack much capability to maintain or improve in the use area. The native plant communities here are not sustainable.

The Vegetation Guidelines (Appendix A to the Standards and Guidelines) Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands states that "Communities will exhibit or be progressing towards a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in the Little Smoky Valley Use Area.

6. NORTH SAND SPRINGS VALLEY USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X **Not achieving the Standard, not making significant progress towards**

Guidelines Conformance:

□ In conformance with the Guidelines (See Part 3. Guideline Conformance Review)
X **Not in conformance with the Guidelines**

Livestock As A Causal Factor:

X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Standard not achieved. Of two vegetation cover studies accomplished in the North Sand Springs Valley Use Area, both studies detail live vegetative cover less than expected for the ecological site (Table 6.4-1). Biotic crusts were observed to be not native or appropriate to the sandy soil types. No excess trampling or compaction of soils was found at either site. No cheatgrass or halogeton was present at either site. At DW-61 in a former winterfat dominant meadow, bur buttercup or stickseed and mustard have been observed throughout the evaluation period. Wyoming sagebrush is encroaching on this salt desert shrub site and winterfat has declined dramatically. A 13 year frequency trend study at Key Area 21 indicates a static trend. The type or composition of live vegetative canopy is inappropriate to site potential at Key Areas DW-21 & DW-58. These key areas show shrub composition of 91% and 87% respectively according to ecological condition studies. These loamy range sites should be composed of about 45 to 50% grasses, 5% forbs, and 45 to 50% shrubs. Native perennial grasses and forbs are

somewhat lacking. The Ely District Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum or desirable when a healthy herbaceous understory is present to protect soils.

The shrub dominance has been compounded by drought. This area was also closed to livestock grazing along with 3 other use areas in the Duckwater Allotment in August, 2000 due to drought. The drought closure was lifted in June, 2001. Key species utilization has varied during the evaluation period from light to severe. Use has been severe at Key Area DW-61 in the former winterfat meadow. At times during the evaluation period (1999-2008), key forage plant method utilization has been in conformance with the Guidelines for Rangeland Health, has been within the range that scientific literature and experience indicates should allow for recovery, and has been in accordance with Nevada Rangeland Monitoring Handbook guidelines. Utilization has also at times been in conformance with the new Ely District Resource Management Plan (August, 2008) and the June 1995 Grazing Decision.

Significant progress is not being made towards achievement of the Upland Standard because movement towards achieving the Upland Standard is just not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the apprpropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of an herbaceous understory, and the risk of invasive species spread at Key Area DW-61, the soil resources lack capability to maintain or improve in this use area.

Standard #2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Conclusion: **Not Applicable**
This Standard was not evaluated since there are no public land riparian systems present in the North Sand Springs Use Area.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
 In conformance with the Guidelines
X Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
X Livestock are a contributing factor to not achieving the Standard
 Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

The Habitat Standard is not achieved on native range, and significant progress is not being made towards achievement. Vegetation cover studies, ecological condition studies, frequency trend studies, photographs, and professional observations indicate portions of the North Sand Springs Valley Use Area are not achieving the Habitat Standard, due to inappropriate plant composition at key areas, inappropriate plant community production, inappropriate plant structure, and the risk of expansion of halogeton, cheatgrass, and other invasive annuals into native plant communities.

The area as a whole exhibits a low potential to be converted to a non-indigenous halogeton dominated range or cheatgrass dominated range. With the exception of Key Area DW-61 (sensitive winterfat site), invasive species are not as present or as dense as in other areas of the allotment. Cheatgrass is not present at DW-21 or DW-58. Key Areas DW-21 and DW-58 are shrub dominant, however native grasses compose from 10 to 12% of the plant community composition. Shrubs are encroaching on the former winterfat meadow at Key Area DW-61. This meadow is degraded. According to the ecological site descriptions for the loamy 8-10" site (DW-21 & 58), grasses should compose about 50%, forbs 5%, and shrubs 45% of the plant community production. The current composition at DW-21 and DW-58 is about 11% grasses, 1% forbs, and 88% shrubs (average). This range still has some resilience and resistance to invasive species spread.

Vegetation productivity was found to be appropriate at DW-21 and DW-58. The results compared reasonably to unfavorable year norms. As ascertained from utilization studies, precipitation tables, drought monitoring, photographs, and professional observations, productivity along with plant vigor have been somewhat normal for this area. However too much of the productivity is linked to shrubs and not enough to native grasses and forbs. This area was also closed to livestock grazing along with 3 other use areas in the Duckwater Allotment in August, 2000 due to drought. The drought closure was lifted in June, 2001.

Vegetation structure is inappropriate in the North Sand Springs Use Area to the extent that key areas and other areas are in a somewhat shrub dominant state with a native grass and forb component that is somewhat below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking. Also, young plants of the more favorable native grasses and forbs have generally not been present. This is confirmed by utilization studies, professional observations, and photographs. The variation in vegetation distribution over the North Sand Springs Valley Use Area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key palatable species production has generally been below desired objectives. (see also the discussion for nutrition on page 8).

Significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is just not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the apprpropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance, lack of herbaceous production, and the risk of invasive species spread, the vegetative resources lack much resiliency or capability to maintain or improve in this use area. Based on professional judgment, the native plant communities here are in better shape than other use areas of the Duckwater Allotment, yet not sustainable in the long term.

The Vegetation Guidelines (Appendix A to the Standards and guidelines) Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands states that "Communities will exhibit or be progressing towards a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in the North Sand Springs Valley Use Area.

7. PANCAKE EAST BENCH/DUCKWATER VALLEY USE AREA

The Pancake East Bench/Duckwater Valley Use Area is further divided into two sub-areas below to facilitate the Standards Conformance Review. The "North Pancake Area" occurs generally north of the McClure Spring Pipeline and is grazed by the Duckwater Shoshone Tribe in spring, summer, and fall. The "Duckwater Corner Area" occurs generally south of the McClure Spring Pipeline and is grazed by Duckwater Cattle Company during winter (See map page 228).

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination – North Pancake Area – North of McClure Spring Pipeline:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X **Not achieving the Standard, not making significant progress towards**

Guidelines Conformance:

X I**n conformance with the Guidelines**
□ Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
□ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is related to other issues or conditions

Determination –Duckwater Corner Area – South of McClure Spring Pipeline:
X **Achieving the Standard**
□ Not achieving the Standard, but making significant progress towards
□ Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X I**n conformance with the Guidelines**
□ Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

North Pancake Area - Standard not achieved, and significant progress is not being made towards achievement. Five vegetation cover studies accomplished in the middle and north portions of the Pancake East Bench/Duckwater Valley Use Area detail live vegetative cover far less than expected for the ecological site (DW-04, 22, 62, 64, 65- Table 7.1-1). Biotic crusts were observed to be abundant at one of these areas. Biotic crusts were not native or appropriate to two of these sites, on sandy soil types. Biotic crusts were not present at DW-04 and were barely present at DW-62. No excess trampling or compaction of soils was found at any site. Native vegetation cover has decreased dramatically at DW-65 (Saline bottom). Cheatgrass was found to be 1% of the vegetative cover at DW-64. Based on the inappropriate live vegetative cover at five study sites, in conjunction with drought, litter is also inappropriate to help protect soils. Litter is very low at DW-62 and DW-65. Observed apparent trend was static at DW-22 in July 2000, and downward in June 1995. Observed apparent trend was static at DW-04 in August 1994. Key Area DW-04 has become rabbitbrush and bud sagebrush dominant. Together these shrubs should be producing from 8 to 18% of the plant community production. The ecological condition study indicates that together they are currently producing about 58% of the plant community. Galleta grass, which should be producing from 2 to 10%, is currently producing about 31%. This represents inappropriate vegetation composition. The type or composition of live vegetative canopy is inappropriate to site potential at DW-04. The Loamy 5-8" range site should be composed of about 35% grasses, 5% forbs, and 60% shrubs. Indian ricegrass should be the dominant perennial bunchgrass. The type or composition of live vegetative canopy is also inappropriate to site potential at DW-65, where greasewood has increased while basin wildrye, inland saltgrass, and other perennial grasses have decreased. Frequency trend data at DW-04 indicates a 20 year declining range trend with less three awn grass, less sand dropseed, less globemallow, and less shadscale than 20 years ago. At DW-22, a 5 year trend study indicates increasing rabbitbrush and bud sagebrush.

The Ely District Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum or desirable when a healthy herbaceous understory is present to protect soils.

The increase in shrubs and galleta grass has been aggravated by drought (see Section 12, Precipitation, p. 170). Key species utilization has varied during the evaluation period from slight to heavy. At times during the evaluation period (1999-2008), key forage plant method utilization

has been in conformance with the Guidelines for Rangeland Health, has been within the range that scientific literature and experience indicates should allow for recovery, and has been in accordance with Nevada Rangeland Monitoring Handbook guidelines. Utilization has also at times been in conformance with the new Ely District Resource Management Plan (August, 2008) and the June 1995 Grazing Decision.

A large area of severely degraded rangeland of several hundred acres occurs north of the Duckwater Shoshone Reservation in this use area, just west of the main county road. Cattle still water and lounge at an earthen reservoir in the middle of this area. This is a severely depleted area where invasive annuals totally dominate the landscape. This area has been degraded for many years, and is considered to have occurred as a result of historical heavy grazing prior to 1994. Due to inappropriate plant cover, plant composition, litter, and the risk of invasive species spread, the soil resources lack much resiliency or capability to maintain or improve in this use area.

Significant progress is not being made towards achievement of the Upland Standard because movement towards achieving the Upland Standard is not occurring in terms of both vegetative change or the current wild horse populations above the apprpropriate management level (AML). Wild horses are a contributing factor. Due to shrub dominance, lack of native vegetation cover, the risk of invasive species spread, risk of erosion and loss of soil structure, and heavy or severe utilization at times, the soil resources lack much resiliency or capability to maintain or improve in this use area.

Duckwater Corner Area - Standard achieved. Four vegetation cover studies accomplished in the south portion of the Pancake East Bench Use Area (Duckwater Corner) detail live vegetative cover somewhat less than appropriate to ecological site potential (SS-A through SS-D page 152). Soils were generally stabilized by surface fragments and live vegetation. Plant litter was not abundant on these study areas. Biotic crusts were observed to be present at three of four areas. No plant pedestalling or surface soil erosion was noted. There was no excess trampling or surface soil compaction. Plant composition is inappropriate to ecological site potential. Significant progress is being made towards achievement of the Upland Standard in the "Duckwater Corner" because movement towards achieving the Upland Standard is ocurring at an acceptable level of rate and magnitude in terms of vegetative change or in terms of the grazing system in place. Complete non-use has been taken by Duckwater Cattle Company 3 of the last 5 years. When use has been made, it has been during the winter grazing period, when there are generally less negative impacts to soils.

Standard #2. Riparian and Wetland Sites

Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Riparian and Wetland Sites Indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerated erosion, capturing sediment, and providing for groundwater recharge and release are

determined by the following measurements as appropriate to the site characteristics: Width/Depth ratio; Channel roughness; Sinuosity of stream channel; Bank stability; Vegetative cover (amount, spacing, life form); and Other cover (large woody debris, rock).

- ❖ Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

- ❖ Chemical, physical, and biological water constituents are not exceeding the State water quality standards.

Determination:
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
□ In conformance with the Guidelines
X Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion: Standard not achieved. Three springs were evaluated in the Pancake East Bench/Duckwater Valley Use Area during the summer of 2008 (see 1.4 riparian data – p. 93). These are all developed water sources with hydric soils present supporting native riparian plant species. They are all cool water sytems. All three springs (Florio, McClure, and Florio Well Spring) were rated functional at risk with a downward trend or trend not apparent to downward. Vegetation attributes for all three areas were generally rated negative or "no". Current management is not maintaining the biological integrity of the three springs.

Significant progress is not being made towards achievement of the Riparian Standard because movement towards achieving the Riprian Standard is not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the apprpropriate management level (AML). Both livestock and wild horses are contributing factors. Due to lack of riparian species cover, heavy or severe utilization, trampling, drought, the risk of invasive species spread, and other factors, the riparian areas lack much resiliency or capability to maintain or improve in this use area.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- ❖ Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination – North Pancake Area – North of McClure Spring Pipeline:
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X I**n conformance with the Guidelines**
□ Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
□ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is related to other issues or conditions

Determination – Duckwater Corner Area - South of McClure Spring Pipeline:
□ Achieving the Standard
X Not achieving the Standard, but making significant progress towards
□ Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X I**n conformance with the Guidelines**
□ Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
□ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is related to other issues or conditions

North Pancake Area - Standard not achieved. ***Conclusion:***

The Habitat Standard is not achieved on native range, and significant progress is not being made towards achievement. Vegetation cover studies, ecological condition studies, frequency trend studies, photographs, and professional observations indicate major portions of the Pancake East Bench Use Area are not achieving the Habitat Standard, due to inappropriate plant composition and structure at key areas and the risk of further expansion of cheatgrass, and other invasive annuals into native plant communities. At DW-04 cheatgrass was estimated to be producing from 3 to 10% of the current annual growth of the plant community according to the vegetation cover study of May 20, 2008. The ecological condition study at DW-04 on May 20 detailed 2.8% production of cheatgrass. Cheatgrass is known to occur throughout this use area. The area as a whole exhibits a moderate potential to be converted to a non-indigenous cheatgrass

dominated range. The invasive annuals halogeton, Russian thistle, and some mustards are also present in both native range and along roadways.

Rabbitbrush and bud sagebrush have increased dramatically at DW-22. Rabbitbrush has become the dominant shrub at DW-62. In general, professional observations over a 17 year period indicate rabbitbrush has become the dominant shrub over thousand of acres of the salt desert shrub range in this use area. At the same time Indian ricegrass has decreased dramatically. These sites are currently in the process of transitioning to shrub dominance and lack a desired native perennial grass and forb component, indicating a range that is susceptible to invasive species spread.

Vegetation productivity has been recorded at below normal year levels for Key Area DW-04 (Loamy 5-8") and above favorable year levels at DW-64 (Loamy slope 10-14"). Productivity along with plant vigor have generally been unfavorable throughout the area during the evaluation period, as can be ascertained from the precipitation data gathered for this analysis combined with the cover and ecological condition studies, and notes from utilization forms. Key Area DW-64 is a bright spot in that vegetation production and vegetative composition are appropriate to site potential.

Vegetation structure is inappropriate in the Pancake Use Area to the extent that certain key areas and other areas are transitioning to a shrub dominant state with a native grass and forb component that is below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking. Also, young plants of the more favorable native grasses and forbs have generally not been present. This is confirmed by the frequency trend studies, utilization studies, and professional observations. However the variation in vegetation distribution over the Pancake Use Area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key species production has generally been below desired objectives. (see also the discussion for nutrition on page 8).

Currently cheatgrass has increased at Key Area DW-04 according to the frequency trend study. In March 2008, thick ungrazed cheatgrass inside the use cage at DW-04 appeared to have caused the mortality of native perennial grasses. Outside the use cage, cheatgrass was far less dense and native perennial grasses were healthier. Cheatgrass was observed to be abundant at DW-64 on March 19, 2001. At DW-64 on May 20, 2008, cheatgrass was reported to produce 1% of the plant community composition by cover. No invasive species including cheatgrass were present at DW-62 or DW-65 on May 27, 2008. A small amount of cheatgrass was located at DW-22 on May 20, 2008. Cheatgrass production varies annually. Professional observations indicate cheatgrass occurs throughout the use area. The native plant communities of the Pancake Use Area have not yet crossed a threshold to the "cheatgrass/annual grass infested state" where a significant amount of cheatgrass occurs in a shrub dominated community. The Loamy 5-8", Loamy slope 10-14", and the Saline Bottom range sites are still considered somewhat resilient and resistant to invasive annual introduction.

Significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is not occurring in terms of both vegetative change or the current livestock management or wild horse populations above the apprpropriate management level (AML). Both livestock and wild horses are contributing factors. Due to shrub dominance (inappropriate composition), inappropriate vegetation production, inappropriate vegetation structure, and the moderate risk of invasive species spread, the vegetative resources lack much capability to maintain or improve in the use area. The native plant communities here are not sustainable.

The Vegetation Guidelines (Appendix A to the Standards and Guidelines) Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands states that "Communities will exhibit or be progressing towards a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in the Pancake East Bench/Duckwater Valley Use Area.

Duckwater Corner Area - Standard not achieved.

Conclusion: **The Habitat Standard is not achieved on native range, but significant progress is being made towards achievement.** Vegetation cover studies, photographs, and professional observations indicate the "Duckwater Corner" portion of the Pancake East Bench Use Area is not achieving the Habitat Standard due to inappropriate plant composition and structure at four study sites. These sites have transitioned somewhat to shrub dominance, although a healthy diversity of shrubs are present for winter grazing, including four wing saltbush and spiny hopsage. Black sagebrush and rabbitbrush are dominant over much of the area.

Potential vegetative composition on the shallow calcareous loam ecological site (029XY008NV – black sagebrush) is about 50% grasses, 5% forbs, and 45% shrubs and trees. Current composition by plant cover at SS-A is 93% shrubs, 3% grasses, 1% forbs, and 3% invasive annuals. Current composition by plant cover at SS-D is 100% shrubs. Potential vegetative composition on the gravelly loam ecological site (029XY087NV – greasewood) is about 45% grasses, 5% forbs, and 50% shrubs. Current composition by plant cover at SS-B is 96% shrubs, 3% grasses, and 2% forbs. Potential vegetative composition on the loamy 5-8" ecological site (029XY017NV – shadscale) is about 45% grasses, 5% forbs, and 50% shrubs. Current composition by plant cover at SS-C is 87% shrubs, 2% grasses, 5% forbs, and 5% invasive annuals.

Significant progress is being made towards achievement of the Habitat Standard in the Duckwater Corner Area in terms of the grazing system in place. Voluntary non-use has been taken on this use area three of the last five years. When use has been made, it has been winter use, by only 45 head of cattle.

8. POGUES STATION USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X **Not achieving the Standard, not making significant progress towards**

Guidelines Conformance:

□ In conformance with the Guidelines (See Part 3. Guideline Conformance Review)
X **Not in conformance with the Guidelines**

Livestock As A Causal Factor:

X Livestock are a contributing factor to not achieving the Standard
□ Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Standard not achieved. All five vegetation cover studies in the Pogues Station Use Area detail live vegetative cover far less than expected for the ecological site. Cover has decreased dramatically at DW-08 (Saline terrace) which is a very dry site. Biological surfaces were not present at DW-10, not native or appropriate to DW-08 & DW-16, and were present on plant pedestals at DW-74. No excess trampling or compaction of soils was discovered at DW-08, DW-10, and DW-74 in 2008. In 2003, at DW-74, the silty soil was being trampled a little too heavily. At DW-16 in 2008, cattle had worked the soil pretty good. No invasive species were recorded at DW-08, 16, or 74 in 2008, however halogeton was recorded at DW-10 in 2008 and is known to be common in the range surrounding Government Well (Indian Well). Halogeton occurs in many of the winterfat dominant salt desert shrub communities in this use area as confirmed by professional observations, photos, and notes from utilization forms which characterize halogeton as abundant or occurring in "pockets". Winterfat and halogeton grow together in much of the use area on fine textured silty soils that are easily disturbed. Russian thistle and invasive mustard also occur in the area in both native range and along roadways. Several hundred acres of salt desert shrub or sagebrush range that occur east and northeast of Pogues Station are severely degraded, and are dominated by cheatgrass, halogeton, or both. These lands occur in T. 15N., R. 55E., Sections 5, 6, 7, 8, 17, 18.

The composition by cover table (8.4-2) indicates that as a whole the use area has transitioned to shrub dominance. For example, DW-08 is currently producing 100% shrubs, whereas the potential vegetative composition for the area is about 15% native grass, 5% forbs, and 80% shrubs. DW-16 is producing 87% shrubs, whereas the potential vegetative composition for the area is about 30% native grass, 5% forbs, and 65% shrubs. DW-10 is producing 82% shrubs, whereas the potential vegetative composition for the area is about 45% native grass, 5% forbs, and 50% shrubs. This represents inappropriate vegetation composition. The type or composition of live vegetative canopy is inappropriate to site potential throughout the area. Frequency trend data at DW-10 indicates a 15 year declining range trend with less Indian ricegrass, less galleta grass, less globemallow, less winterfat, less squirreltail, more halogeton, and more bud sagebrush.

The Ely District Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum or desirable when a healthy herbaceous understory is present to protect soils.

The increase in shrubs has been aggravated by drought (see 12. Precipitation Section p. 183). Key species utilization has varied during the evaluation period from slight to severe. At times during the evaluation period (1999-2008), key forage plant method utilization has been in conformance with the Guidelines for Rangeland Health, has been within the range that scientific literature and experience indicates should allow for recovery, and has been in accordance with Nevada Rangeland Monitoring Handbook guidelines. Utilization has also at times been in conformance with the new Ely District Resource Management Plan (August, 2008) and the June 1995 Grazing Decision.

Significant progress is not being made towards achievement of the Upland Standard because movement towards achieving the Upland Standard is not at an acceptable level of rate in terms of both vegetative change or the current livestock management or wild horse populations above the apprpropriate management level (AML). Both livestock and wild horses are contributing factors. Due to inappropriate plant composition, lack of vegetative cover, and the risk of invasive species spread, the soil resources lack much resiliency or capability to maintain or improve in this use area. Vegetation production and structure are also inappropriate, as indicated below in the conformance summary for the Habitat Standard.

Standard #2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Conclusion: **Not Applicable**
This Standard was not evaluated since there are no public land riparian systems present in the Pogues Station Use Area.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
 In conformance with the Guidelines
X Not in conformance with the Guidelines (See Part 3. Guideline Conformance Review)

Livestock As A Causal Factor:
X Livestock are a contributing factor to not achieving the Standard
 Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

The Habitat Standard is not achieved on native range, and significant progress is not being made towards achievement. Vegetation cover studies, ecological condition studies, frequency trend studies, photographs, and professional observations indicate portions of the Pogues Station Use Area are not achieving the Habitat Standard, due to inappropriate plant composition at key areas, inappropriate cover, lack of production, inappropriate vegetation structure, and the risk of expansion of halogeton, cheatgrass, and other invasive annuals into native plant communities.

The area as a whole exhibits a moderate potential to be converted to a non-indigenous halogeton dominated range or cheatgrass dominated range. Many former winterfat dominated salt desert shrub meadows in the use area are now dominated with halogeton. Key Areas DW-10, DW-08, DW-16, and DW-74 (salt desert shrub sites - Table 8.1-1), are shrub dominant. These sites have transitioned to shrub dominance and lack a desired native perennial grass and forb component, indicating a transition to a woody shrub dominant state that has lost resiliency and is susceptible to invasive species spread and erosion.

Vegetation structure is inappropriate in the Pogues Station Use Area to the extent that key areas and other areas are in a shrub dominant state with a native grass and forb component that is below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking. Also, young plants of the more desired native grasses and forbs have generally not been present. This is confirmed by utilization studies, professional observations, and photographs. However the variation in vegetation distribution over the Pogues Station Use Area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

Vegetation productivity was found to be inappropriate at DW-08, DW-10, and DW-74 according to ecological condition studies. Each of these studies documented plant community production at less than unfavorable year levels. There was a dramatic variance at DW-08. As ascertained from utilization studies, precipitation tables, drought monitoring, photographs, and professional observations, productivity along with plant vigor have been below normal for this area. As the crop year precipitation table shows, 10 of the last 12 years have been below the 30 year average of 8.44 inches of precipitation for the crop year (September – June). Many years have been far below this norm. This represents drought conditions in which plant community productivity has been well below normal. Too much of the productivity is linked to shrubs and not enough to native grasses and forbs.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or

the division of wildlife (NDOW) related to animal condition. However, key palatable species production has generally been below desired objectives (see also the discussion for nutrition on page 8).

Significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is not at an acceptable level of rate and magnitude in terms of vegetative change or in terms of the grazing system in place. Due to shrub dominance, lack of production, and the risk of invasive species spread, the vegetative resources lack much resiliency or capability to maintain or improve in this use area.

The Vegetation Guidelines (Appendix A to the Standards and Guidelines), Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands states that "Communities will exhibit or be progressing toward a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in the Pogues Station Use Area.

9. SOUTH SAND SPRINGS VALLEY USE AREA

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- ❖ Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X **Not achieving the Standard, not making significant progress towards**

Guidelines Conformance:

X In conformance with the Guidelines (See Part 3. Guideline Conformance Review)
□ Not in conformance with the Guidelines

Livestock As A Causal Factor:

□ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is related to other issues or conditions

Standard not achieved. Line intercept vegetation cover studies have not been accomplished in this use area. Ecological condition studies, utilization studies, drought checklists, observed apparent trend studies, and professional observations over a 17 year period indicate vegetation cover is far less than appropriate to the rangeland ecological sites in the area. Much of the former desert shrub, winterfat dominant sites have degraded to halogeton only areas or areas of winterfat mixed with halogeton. The Silty 5-8" range sites are characterized by fine textured soils that area easily susceptible to disturbance. Other invasive species are also present. Much of the Wyoming sagebrush or black sagebrush range has transitioned to shrub dominance with a

depleted understory of native bunchgrasses and forbs. The type or composition of live vegetative canopy is inappropriate to site potential throughout the area. At Key Area DW-06, halogeton produced about 42% of the current annual growth in 1992. A ten year frequency trend study at DW-06 indicates a downward trend with less Indian ricegrass, less squirreltail, less winterfat, more halogeton, and more cheatgrass. Bud sagebrush has been observed to be increasing dramatically near DW-06, while native grasses and forbs are declining. Utilization studies, drought checks and observed apparent trend studies document that year long utilization has most often been heavy or severe at DW-08 or at other key area locations. A range memorandum and record of field tour on 9/25/1996 in Sand Springs Valley stated "In general all the range we surveyed was dry, brittle, and unproductive….in the winterfat area west of Portuguese Mountain current year utilization ranged from moderate to severe in this area of remnant winterfat." Two or three small earthen reservoirs were present in the main Sand Springs Valley drainage in the 1980s. These failed long ago due to flooding. Many rills and gullies are present in the area.

The Ely District Office Soils Specialist has commented that the lack of an herbaceous understory can alter water infiltration and permeability rates. Soil conditions are optimum or desirable when a healthy herbaceous understory is present to protect soils.

The increase in shrubs has been aggravated by drought. The area was closed to livestock grazing along with 3 other use areas in the Duckwater Allotment in August, 2000 due to drought. The drought closure was lifted in June, 2001. Key species utilization has varied during the evaluation period from moderate to severe. Current year's use of black sagebrush was observed to be used light or less at DW-73 on 4/23/2008. Few sheep droppings from winter were present, with heavy wild horse sign noted.

Significant progress is not being made towards achievement of the Upland Standard because movement towards achieving the Upland Standard is not at an acceptable level of rate in terms of both vegetative change and the wild horse populations above the apprpropriate management level (AML). Wild horses are a contributing factor. Due to inappropriate plant composition, lack of vegetative cover and production, a history of heavy and severe use, and the risk of invasive species spread, the soil resources lack much resiliency or capability to maintain or improve in this use area.

Standard #2. Riparian and Wetland Sites

Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Riparian and Wetland Sites Indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerated erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics: Width/Depth ratio; Channel roughness; Sinuosity of stream channel; Bank stability; Vegetative cover (amount, spacing, life form); and Other cover (large woody debris,

rock).

- ❖ Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

- ❖ Chemical, physical, and biological water constituents are not exceeding the State water quality standards.

Determination:
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X In conformance with the Guidelines (See Part 3. Guideline Conformance Review)
□ Not in conformance with the Guidelines

Livestock As A Causal Factor:
□ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion: Standard not achieved. Martiletti Spring was evaluated in this use area during the summer of 2008. This spring was rated as non-functional with a downward trend. The area appears to have supported about ½ acre of hydric soils with riparian vegetation at one time. Extreme degradation was evident caused by many years of wild horse use. A small pool of thick mucky water was present. The spring development that once piped water approximately two miles to the valley was destroyed in the late 1980s and has not worked since. The spring area is eroded and trampled, with little remaining riparian vegetation present. Remnants of a spring exclosure constructed about 40 years ago remains.

Portuguese Spring was not rated. The source in the headbox was dry. No surface water was present. About 1/20 acre of sedge and rush was used 85 to 90% by wild horses. The exclosure built by BLM about 1996 was completely down. If rated this small ephemeral developed water source would rate non-functional.

Significant progress is not being made towards achievement of the Riparian Standard because movement towards achieving the Riparian Standard is not at an acceptable level of rate in terms of both vegetative change or the wild horse populations above the apprpropriate management level (AML). Wild horses are a contributing factor. Martiletti Spring has been monitored many times since 1991 and has always been in a very degraded state.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living

space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:

□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
X Not achieving the Standard, not making significant progress towards

Guidelines Conformance:

X In conformance with the Guidelines (See Part 3. Guideline Conformance Review)
□ Not in conformance with the Guidelines

Livestock As A Causal Factor:

□ Livestock are a contributing factor to not achieving the Standard
X Livestock are not a contributing factor to not achieving the Standard
X Failure to achieve the Standard is also related to other issues or conditions

Conclusion:

The Habitat Standard is not achieved on native range, and significant progress is not being made towards achievement. Ecological condition studies, frequency trend studies, drought checks, observed apparent trend studies, photographs, and professional observations indicate major portions of the Sand Springs Valley Use Area are not achieving the Habitat Standard, due to inappropriate plant composition at key areas, inappropriate cover, inappropriate structure, lack of production, and the risk of expansion of halogeton, cheatgrass, and other invasive annuals into native plant communities.

The area as a whole exhibits a high potential to continue to be converted to a non-indigenous halogeton dominated range or cheatgrass dominated range. Many former winterfat dominated salt desert shrub meadows in the use area are now dominated with halogeton. Key Areas DW-06 has transitioned to shrub dominance, lacking a desired native perennial grass and forb component. The area as a whole has lost resiliency and is susceptible to invasive species spread and erosion. The ecological trajectory of succession is towards an undesirable invasive annual dominated plant community.

Vegetation structure is inappropriate in the South Sand Springs Valley Use Area to the extent that key areas and other areas are in a shrub dominant state with a native grass and forb component that is below ecological site potential. The shrub life form is over abundant and the native perennial grass life form or forb life form is lacking. Also, young plants of the more favorable native grasses and forbs have generally not been present. This is confirmed by utilization studies, professional observations, and photographs. However the variation in

vegetation structure over the landscape area as a whole is good, as indicated by topographic diversity and the variation in soil mapping units and rangeland ecological sites.

The amount of vegetation productivity was found to be appropriate to unfavorable year levels at DW-06 in 1992, however 42% of the production was halogeton. As ascertained from utilization studies, precipitation tables, drought monitoring, observed apparent trend studies, photographs, and professional observations, productivity along with plant vigor have been far below normal for this area. As the crop year precipitation table shows, 10 of the last 12 years have been below the 30 year average of 8.44 inches of precipitation for the crop year (September – June). Many years have been far below this norm. This represents drought conditions in which plant community productivity has been well below normal. Too much of the productivity is linked to shrubs and not enough to native grasses and forbs. The area was closed to livestock grazing along with 3 other use areas in the Duckwater Allotment in August, 2000 due to drought. The drought closure was lifted in June, 2001.

Vegetation nutritional value has not been monitored, however nutritious, palatable plant species are present to meet the physiological requirements of livestock and wildlife, even during the winter period. No concerns have been presented by the grazing permittees, interested publics, or the division of wildlife (NDOW) related to animal condition. However, key palatable species production has generally been below desired objectives (see also the discussion for nutrition on page 8).

Significant progress is not being made towards achievement of the Habitat Standard because movement towards achieving the Habitat Standard is not at an acceptable level of rate in terms of both vegetative change or the wild horse populations above the apprpropriate management level (AML). Wild horses are a contributing factor. Due to shrub dominance, lack of production, inappropriate plant community structure, and the risk of invasive species spread, the vegetative resources lack much resiliency or capability to maintain or improve in this use area.

The Vegetation Guidelines (Appendix A to the Standards and Guidelines) Desired Conditions for Salt Desert Shrublands and Sagebrush/Bunchgrass Rangelands states that "Communities will exhibit or be progressing towards a healthy, productive, diverse population of native and/or desirable plant species, and functioning disturbance processes appropriate to the site characteristics." This does not describe conditions in the Sand Springs Valley Use Area.

MONTE CRISTO ALLOTMENT

The Standards and Guidelines for Rangeland Health will be assessed across the allotment as a whole:

Standard # 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

Soils indicators:

- Canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Determination:

X Achieving the Standard

□ Not achieving the Standard, but making significant progress towards

□ Not achieving the Standard, not making significant progress towards

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion: **Standard achieved**

Rangeland monitoring data and professional observation indicates that overall soil condition is currently being maintained on the Monte Cristo Allotment. Line intercept vegetation cover data collected on the allotment shows that the allotment is achieving the standard. Vegetative cover registered within or close to the appropriate or expected ground cover percentage for all of the key areas except one, which is stabilized by a strong litter component (See Appendix I, Table 10.4-1 and 10.4-2).

Key area MC-1 occurs on a Shabliss-Yody soil association (450; NRCS 1980) with a Shallow Loam 8-10" P.Z. ecological site (028BY080NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for a Shallow Loam site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 16 percent and a litter cover of 16 percent. This is within the potential for the site. No pedestaling, gullies, rills, or compaction was noted. Soils appear stable.

Key area MC-2 occurs on a Belmill soil association (360; NRCS 1980). These soils typically have a moderate permeability. Monitoring data indicate that this key area has a vegetative cover of 26 percent and a litter cover of 27 percent. This is as expected for this seeded site. No pedestaling, gullies, rills, or compaction was noted.

Key area MC-3 occurs on a Belmill soil association (360; NRCS 1980). These soils typically have a moderate permeability. Monitoring data indicate that this key area has a vegetative cover of 13 percent and a litter cover of 14 percent. This is as expected for this seeded site. No pedestaling, gullies, rills, or compaction was noted.

Key area MC-4 occurs on a Tulase-Yody-Heist soil association (173; NRCS 1980) with a Silty 8-10" P.Z. ecological site (028BY013NV). These soils typically have a moderate to moderately rapid permeability. The approximate ground cover (basal and crown) for a Silty site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 7 percent and a litter cover of 7 percent. This is lower than the potential for the site, however is not negatively affecting permeability based on professional observations. No pedestaling, gullies, rills, or compaction was noted.

Key area MC-5 occurs on a Belmill soil association (360; NRCS 1980) with a Gravelly Clay 10-12" P.Z. ecological site (028BY086NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for a Gravelly Clay site is 20-40 percent. Monitoring data indicate that this key area has a vegetative cover of 19 percent and a litter cover

of 20 percent. While vegetative cover is less than expected, the litter component is stabilizing the soils. No pedestaling, gullies, rills, or compaction was noted.

Key area MC-6 occurs on a Shabliss-Yody soil association (450; NRCS 1980) with a Shallow Loam 8-10" P.Z. ecological site (028BY080NV). These soils typically have a moderate permeability. The approximate ground cover (basal and crown) for a Shallow Loam site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 21 percent and a litter cover of 17 percent. The site is maintaining cover higher than the potential for the site, which is not negatively affecting infiltration and permeability. No pedestaling, gullies, rills, or compaction was noted.

Standard #2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria

Determination:
X Not Applicable
□ Achieving the Standard
□ Not achieving the Standard, but making significant progress towards
□ Not achieving the Standard, not making significant progress towards

Conclusion: **Not Applicable**
No riparian areas occur on the Monte Cristo Allotment.

Standard #3. Habitat
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

Habitat indicators:

- Vegetation composition (relative abundance of species); vegetation structure (life forms, cover, height, or age classes); vegetation distribution (patchiness, corridors); vegetation productivity; and vegetation nutritional value.

Determination:
□ Achieving the Standard
X Not achieving the Standard, but making significant progress towards
□ Not achieving the Standard, not making significant progress towards

Guidelines Conformance:
X In conformance with the Guidelines
□ Not In conformance with the Guidelines

Livestock As A Causal Factor:

□ Livestock are a causal factor to not achieving the Standard

X Livestock are not a causal factor to not achieving the Standard

X Failure to achieve the Standard is related to other issues or conditions

Conclusion: **Not achieving the Standard, but making significant progress towards**

Rangeland monitoring data (See Appendix I, Table 10.5-1 and 10.6-1) and professional observations show that vegetation structure, distribution, and production on the Monte Cristo Allotment are consistent with the Rangeland Ecological Site Descriptions (ESD) and/or expected plant community for the area. Vegetative structure is composed of varying age classes and heights of plants. Vegetation is distributed across the landscape as expected. Vegetative production is as expected for the allotment. Key area MC-1 has a current production of 339 pounds per acre (dry weight) and MC-6 has a current production of 304 pounds per acre (dry weight). The approximate production for these Shallow Loam sites is 200 pounds per acre (dry weight) on an unfavorable year, 400 pounds per acre (dry weight) on a normal year, and 600 pounds per acre (dry weight) on a favorable year. Key area MC-4 has a current production of 343 pounds per acre (dry weight). The approximate production for this Silty site is 350 pounds per acre (dry weight) on an unfavorable year, 500 pounds per acre (dry weight) on a normal year, and 700 pounds per acre (dry weight) on a favorable year. Key area MC-5 has a current production of 392 pounds per acre (dry weight). The approximate production for this Gravelly Clay site is 350 pounds per acre (dry weight) on an unfavorable year, 600 pounds per acre (dry weight) on a normal year, and 800 pounds per acre (dry weight) on a favorable year. Key are MC-2 has a current production of 683 pounds per acre (dry weight) and MC-3 has a current production of 609 pounds per acre (dry weight). This is as expected for these seeded sites. These are indicators that the Monte Cristo Allotment is close to achieving the standard for habitat.

However on the Monte Cristo Allotment native vegetation composition differs from the ESD. Percent vegetation composition by weight shows that shrubs are higher than what is expected while grasses are lower when compared to the historic climax plant community (HCPC) in the ESD. However dominate species on the ground are the same as the dominate species in the ESD. This is further expressed by the similarity index for the area which is 61 percent for MC-1, 52 percent for MC-4, 50 percent for MC-5, and 57 percent for MC-6. This shows that the vegetative components are present however differ in percent composition. When comparing these similarity indexes and percent compositions from 2008 with some data collected in 2003, no trend can be determined.

On the seeded portion of the Monte Cristo Allotment, composition data was also collected (see Appendix I, Table 10.6-1). Key areas MC-2 and MC-3 are both dominated by Wyoming sagebrush and crested wheatgrass. These sites have a higher shrub component that would be expected for a seeding.

Utilization levels have been slight to moderate across the allotment (see Appendix I, Table 10.3-1) and no livestock use has been licensed since 2002 (see Appendix I, Table 10.2-1). This indicates that livestock are not a causal factor and not achieving the Standard is related to other issues or conditions.

Significant progress is being made towards achievement of the Habitat Standard in terms of good livestock grazing management practices in place. No livestock use has occurred since 2002. Wild horse populations above the appropriate management level (AML) are a contributing factor to non-achievement of the Habitat Standard.

PART 2. ARE LIVESTOCK A CONTRIBUTING FACTOR TO NOT MEETING THE STANDARDS?

This section summarizes the above findings for 9 use areas in the Duckwater Allotment and the Monte Cristo Allotment as to whether or not livestock are a contributing factor to not achieving the Standards for Rangeland Health. This section also identifies the other factors or causes for not achieving the Standards. This section will be summarized by use area, by livestock operator within the use area.

Bull Creek/North Railroad Valley Use Area – Duckwater Cattle Company

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? Yes.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes.

Standard # 1. Upland Sites.

Yes. Livestock are a contributing factor to the non-achievement of this Standard. This use area has been grazed every year during the critical spring growth period. Records show a spring turnout in the Bull Creek Use Area every year since 1980. KFPM utilization studies show heavy or severe use of native cool season perennial bunchgrasses some years. Vegetation cover, vegetation production, vegetative composition, and vegetative structure are inappropriate to site potential and below levels considered desirable for healthy watershed conditions. Early spring grazing damages the ability of the native grasses or winterfat to produce carbohydrate reserves necessary for plant maintenance and production. Thus native grasses have continually been in poor vigor and production in the area. In recent years moisture has been unreliable to regrow native vegetation after May 15, when cattle are removed from this area.

Wild horses, drought, historic heavy grazing from 1870 to 1995 (pioneer times) and possibly flooding are also considered factors in the non-achievement of the Upland Standard. Wild horses have access to this area year long. Wild horse census data combined with KFPM utilization studies and professional observations indicate that wild horses have contributed to heavy and severe use levels of key forage plants. Professional observations combined with utilization studies completed since 1991 indicate severely degraded native rangelands in upper Lampson and Freeland Canyons (eastern portions of the canyons) are primarily attributable to wild horse grazing. These canyons occur in the north portion of the Bull Creek Use Area. This is confirmed by the Monte Cristo Wild & Free Roamimg Horses Management Plan of 1977. A

wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Bull Creek Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

Yes. Livestock are a contributing factor to the non-achievement of this Standard. Use levels on key forage species have at times exceeded those recommended for a healthy watershed with an appropriate composition of native grasses and forbs. Heavy or severe grazing use has occurred during the critical spring growth period (see discussion above for the Upland Sites Standard).

The failure to achieve plant composition goals, plant cover, production and structure goals, is also attributable to wild horses, drought, historic heavy livestock grazing from 1870-1995, and possibly lack of natural wildfire (see discussion above for the Upland Sites Standard).

Bull Corner/Poison Patch Use Area – Duckwater Cattle Company

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes. It is likely that cattle distribution across this winter range needs to be improved.

Standard # 1. Upland Sites

No. Duckwater Cattle Company livestock are not a contributing factor to the non-achievement of this Standard (the case is not clear cut). Key Areas DW-05 and DW-17 occur in the winter range grazed by Duckwater Cattle Company. Range monitoring data at these locations has yielded mixed results. Year long use of the key species Indian ricegrass and winterfat by all herbivores for the 2007 grazing year was low moderate. Fall/winter grazing by cattle is not as directly damaging to soils as spring grazing can be. Duckwater Cattle Company has not used the area during the critical growing period of the cool season perennial bunchgrasses or winterfat. Fall/winter use by cattle may be eliminating residual feed that is needed as litter, needed to recycle nutrients, and needed to help protect soil health and prevent invasive species spread. Duckwater Cattle Company is known to have hauled water for livestock distribution in this area after the Stipulation for Dismissal of Appeals of April, 1996 (as required by the Stipulation). Some years it was not feasible for Duckwater Cattle Company to haul water. Accurate records of water hauling have not been kept, and there has been a reluctance to haul water that is also used by wild horses. BLM has not conducted compliance checks for this term and condition of

the permit. In the absence of water hauling, cattle water only at Bull Creek Ranch (private). This can concentrate cattle use in the area of this source.

Wild horses, drought, historic heavy grazing, and possibly lack of natural wildfire are considered factors in the non-achievement of the Upland Standard. Wild horses have access to this area year long, including during the critical growing period. Wild horse census data combined with KFPM utilization studies and professional observations indicate that wild horses have contributed to heavy and severe use levels of key forage plants within the use area. A wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Bull Creek Corner/Poison Patch Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

No. Duckwater Cattle Company livestock are not a contributing factor to the non-achievement of this Standard, largely for the same reasons as stated above for the Upland Sites Standard.

The failure to achieve the Habitat Standard is attributable to other livestock, wild horses, drought, historic heavy livestock grazing from 1870-1995, and possibly lack of natural wildfire.

Bull Corner/Poison Patch Use Area – Duckwater Shoshone Tribe

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? Yes.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes

Standard # 1. Upland Sites

Yes. Livestock are a contributing factor to the non-achievement of this Standard. That portion of this use area permitted to the Tribe has been grazed every year or every other year during the critical spring growth period and on into the summer months. KFPM utilization studies show heavy or severe use of winterfat or native cool season perennial bunchgrasses some years. Winterfat is a half shrub that is best grazed during the winter grazing period. Vegetation cover and vegetative composition are inappropriate to site potential and are below levels considered desirable for healthy soil and watershed conditions. Spring grazing damages the ability of the native grasses or winterfat to produce carbohydrate reserves necessary for plant maintenance and production. Native grasses have continually been in poor vigor and production in the area. In

recent years moisture has been unreliable to regrow native vegetation after the spring grazing period. The location of water haul tanks for cattle has also contributed to inappropriate use of winterfat and/or native perennial cool season bunchgrasses during the critical spring growing period. Cattle have contributed to the continued decline of severely degraded ranges in the well known area of Poison Wash.

Wild horses, drought, historic heavy grazing from 1870-1995 (pioneer times), lack of natural wildfire, and flooding are also considered factors in the non-achievement of the Upland Standard. Wild horses have access to this area year long. Wild horse census data combined with KFPM utilization studies and professional observations indicate that wild horses have contributed to heavy and severe use levels of key forage plants. A wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Bull Creek Corner/Poison Patch Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

Yes. Livestock are a contributing factor to the non-achievement of this Standard (see discussion above for the Upland Sites Standard). Plant composition, production, and structure are inappropriate to ecological site potential and inappropriate to desired watershed function. The failure to achieve the Habitat Standard is also attributable to wild horses, drought, flooding, historic heavy livestock grazing from 1870-1994, and possibly lack of natural wildfire.

Bull Corner/Poison Patch Use Area – Paris Livestock & Tom and Ellen Gardner

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Sheep grazing during the winter period is not a contributing factor to the non-achievement of the Upland Standard. Sheep use this use area for a total of approximately 15 days or less during winter (Paris Livestock or Tom & Ellen Gardner). The Blue Diamond Oil Corporation has not made sheep use in the area since about 1995. They have taken total voluntary non – use. Sheep utilize primarily the key species black sagebrush or winterfat. There has been no monitoring data collected during the main evaluation period of 1999 to 2008 to show excess use of black sagebrush. Professional observations and some utilization transect forms show light or

less use of an abundant shrub resource throughout the allotment. However KFPM utilization studies show heavy or severe use of winterfat or native cool season perennial bunchgrasses some years. While sheep may contribute to heavy or severe use of winterfat, they leave the allotment in late March, leaving ample time for plant regrowth during the critical growing period. In general, there are far less negative impacts to soils from winter sheep grazing, when soils may be covered with snow or frozen, than from spring or early summer cattle grazing.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Bull Creek Corner/Poison Patch Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

No. Sheep are not a contributing factor to the non-achievement of this Standard (see discussion above for the Upland Sites Standard).

Duckwater Hills Use Area – Duckwater Cattle Company

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Livestock are not a contributing factor to the non-achievement of this Standard.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Duckwater Hills Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

No. Livestock are not a contributing factor to the non-achievement of this Standard. Prior to May, 2009 the BLM interdisciplinary team felt there was not enough data to make a call on whether livestock are or are not a contributing factor to the non-achievement of this Standard. It was felt that significant progress may not be occurring towards achievement of the Habitat Standard. However utilization data and vegetation cover data gathered on May 22, 2009 confirm slight utilization, mid seral ecological condition, and vigorous growth and seed production for the 2009 growing season. Professional observations over an 18 year period indicate cattle use and wild horse use in this pasture have been well distributed with no known

areas of livestock/wild horse concentration. Water hauling has not occurred to the east of the ridgeline from 1999 – 2008. The vegetative resources here still have resilience and have the capability to maintain or improve in the term permit renewal area. Movement towards achieving the Habitat Standard may not be at an acceptable level of rate and magnitude in terms of vegetative change. However the failure to achieve the Habitat Standard in the Duckwater Hills Use Area is attributable to drought, historic heavy livestock grazing from 1870-1994, and possibly lack of natural wildfire.

Duckwater Hills Use Area – Duckwater Shoshone Tribe

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Livestock are not a contributing factor to the non-achievement of this Standard.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Duckwater Hills Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

No. Livestock are not a contributing factor to the non-achievement of this Standard. Utilization data and vegetation cover data gathered on June 4, 2009 confirm slight utilization, mid seral ecological condition, and vigorous growth and seed production for the 2009 growing season. Professional observations over an 18 year period indicate cattle use and wild horse use in this pasture have been well distributed with no known areas of livestock/wild horse concentration. Minimal water hauling has occurred to the west of the ridgeline from 1999 – 2008. The vegetative resources here still have resilience and have the capability to maintain or improve in the term permit renewal area. Movement towards achieving the Habitat Standard may not be at an acceptable level of rate and magnitude in terms of vegetative change. However the failure to achieve the Habitat Standard in the Duckwater Hills Use Area is attributable to drought, historic heavy livestock grazing from 1870-1994, and possibly lack of natural wildfire.

Duckwater Hills Use Area – Blue Diamond Oil Corporation

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Livestock are not a contributing factor to the non-achievement of this Standard. This Standard is achieved for this use area.

Standard # 3. Habitat

No. Blue Diamond Oil has taken voluntary non-use for winter sheep grazing in this use area for the past 12 years.

Green Springs Use Area – Duckwater Cattle Company

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes. Cattle grazing use needs to be distributed more effectively to the black sagebrush and Wyoming sagebrush range in the north and northeast portion of this use area. Less grazing needs to occur on the winterfat dominated salt desert shrub range that is characterized by sensitive silty soils.

Standard # 1. Upland Sites

No. Livestock are not a contributing factor to the non-achievement of this Standard. This use area is deferred from cattle grazing each year until June. Cattle grazing does not occur during the critical spring growing period. Summer grazing is not as directly disturbing to soil quality as spring grazing. Total plant community production data for Key Areas DW-18, 46, 48, and 51 is generally favorable, although shrubs dominate the production. Utilization data from 2008 and 2009 is generally favorable. Duckwater Cattle Company is known to have hauled water for livestock distribution to the northeast portion of this area, to the old water well location in the east central portion of the valley, and to the reclaimed Green Springs Mine, after the Stipulation for Dismissal of Appeals of April, 1996 (as required by the Stipulation). Some years it was not feasible for Duckwater Cattle Company to haul water. Accurate records of water hauling have

not been kept, the permittee has at times been in poor health, and there has been a reluctance to haul water that is also used by wild horses. BLM has generally not conducted compliance checks for this term and condition of the permit. In the absence of water hauling, cattle water at the water ditch running west from Green Springs private ground to a reservoir in the west central portion of the valley. This can concentrate cattle use in the area of water availability and near sensitive winterfat dominant salt desert shrub plant communities.

Wild horses, drought, historic heavy grazing, and possibly lack of natural wildfire are considered factors in the non-achievement of the Upland Standard. Wild horses have access to this area year long. Wild horse census data combined with KFPM utilization studies and professional observations indicate that wild horses have contributed to heavy and severe use levels of key forage plants within the use area. A wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Green Springs Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

No. Livestock are not a contributing factor to the non-achievement of this Standard, for the same reasons presented above for the Upland Sites Standard. The failure to achieve the Habitat Standard is attributable to wild horses, drought, historic heavy livestock grazing from 1870-1994, and possibly lack of natural wildfire.

Little Smoky Valley Use Area – Vince Ferreira

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? Yes. Key forage is not available to sustain the current grazing permit. Monitoring data shows many observations of heavy and severe use on key forage species (Indian ricegrass, winterfat, needleandthread) by cattle, wild horses, or both. This is occurring at a stocking level of from 60 to 222 cattle for about 4 to 5 months during winter/early spring (an average of 731 AUMs used per season over a seven year license period). Current active permitted use is for 414 cattle from 10/1 to 3/31 for 2,481 AUMs).

It was recognized in 1999 that forage was not available in the Little Smoky Valley Use Area to sustain the 2,481 AUM winter permit (see memos dated 11/29/1999 & 1/8/2000 concerning Little Smoky Valley).

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes

Standard # 1. Upland Sites

Yes. Livestock are a contributing factor to the non-achievement of this Standard. Cattle have grazed the area as early as October and as late as mid to late April. Use has been made during the critical spring growth period. Grazing permittees have been unable to remove the cattle by the March 31 off date. An unauthorized reservoir was improved without coordination with BLM right in the middle of a key silty winterfat draw in Cockalorum Wash (see memo dated May 24, 2004 – Section 15. P. 174). KFPM utilization studies show many examples of heavy or severe use of native cool season perennial bunchgrasses and winterfat in this area. Use has been by cattle, wild horses, or both. Vegetation cover, vegetative composition and structure are inappropriate to site potential and below levels considered desirable for healthy watershed conditions. Early spring grazing damages the ability of the native grasses to produce carbohydrate reserves necessary for plant maintenance and production. Thus native grasses have continually been in poor vigor and production in the area. In recent years moisture has been unreliable to regrow native vegetation after the critical spring growing period.

Wild horses, drought, historic heavy grazing from 1870 – 1995, and possibly lack of natural wildfire are also considered factors in the non-achievement of the Upland Sites Standard. Wild horses use this area year long. Wild horse census data combined with KFPM utilization studies and professional observations indicate that wild horses have contributed to heavy and severe use levels of key forage plants. A wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses. Many of the severely degraded native rangelands in Little Smoky Valley are used exclusively by wild horses (Severely degraded rangelands occur across hundreds of acres of land in Big Fault Wash, Snowball Creek Wash, East of Arambel Well, in the area of Cow Well, and in the main Little Smoky Valley Drainage. These lands are severely depleted and are dominated by invasive annuals. Little Smoky Valley is among the least healthy lands managed by the Ely District and Battle Mountain District BLM).

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Little Smoky Valley Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

Yes. Livestock are a contributing factor to the non-achievement of this Standard, largely for the same reasons cited above for the Upland Sites Standard. Use levels on key forage species have often exceeded those recommended for a healthy watershed with an appropriate composition of native grasses and forbs. Heavy or severe grazing use has occurred during the critical spring growth period. This grazing system has contributed to inappropriate vegetative composition, production, cover, and structure. The risk of invasive species spread could be considered moderate to high in this area with halogeton dominating much of the landscape.

Wild horses, drought, historic heavy grazing, and lack of natural wildfire are also considered factors in the non-achievement of the Habitat Standard. See the write up above for the Upland Sites Standard.

Little Smoky Valley Use Area – Paris Livestock & Tom and Ellen Gardner

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No

Standard # 1. Upland Sites

No. Sheep grazing is not a contributing factor to the non-achievement of this Standard. Paris Livestock has made minimal use of Little Smoky Valley, primarily during the winter period in March as he moves north through the use area, and occasionally in January. From one to two bands typically graze the east foothills of the valley, away from the key areas of winterfat or other salt desert shrub range in the valley bottom. Sheep are in this area for 14 days or less at one time. Sheep have normally left the Duckwater Allotment by the last week in March, leaving key forage plants with adequate time to regrow.

Tom and Ellen Gardner have just acquired this permit. This winter sheep will graze the Little Smoky Valley Area in December and January with one sheep band (1425), making use in an area of the west valley that has not been used in many years. Last winter sheep made use in this area for about 5 days in January and 5 days in March with one band (1325). During the winter of 2006/2007, one band (1860) made use from December 28 to 2/15/07 (Gary Snow). During the winter of 2005/2006, about 574 AUMs were used by sheep during winter in the area. Sheep were off the area by February 28. Prior to the winter of 2005/2006, this sheep permit was not activated in the area for about 10 years.

Standard # 3. Habitat

No. Sheep grazing is not considered a contributing factor to the non-achievement of this Standard. See the discussion above for the Upland Sites Standard. Wild horses, drought, and historical grazing from 1870 -1994 are considered contributing factors. To some extent, lack of natural wildfire may also be a contributing factor.

North Sand Springs Valley Use Area – Duckwater Shoshone Tribe

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? Yes

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes.

Standard # 1. Upland Sites

Yes. Cattle grazing is a contributing factor to the non-achievement of this Standard. Cattle have grazed this use area in odd years, during the critical growing period. KFPM utilization studies show heavy or severe use of native cool season perennial bunchgrasses Indian ricegrass and needleandthread some years. Early spring grazing damages the ability of the native grasses to produce carbohydrate reserves necessary for plant maintenance and production. Thus native grasses have continually been in poor vigor and production in the area. This means a healthy herbaceous component is not present to protect soils. In recent years moisture has been unreliable to regrow native vegetation after the spring grazing period. Vegetation cover, vegetative composition and structure are inappropriate to site potential and are below levels considered desirable for healthy soil or watershed conditions.

Wild horses, drought, historical heavy grazing from 1870 to 1994, and lack of natural wildfire are also considered factors in the non-achievement of the Upland Sites Standard. Wild horses have access to this area regularly, on a year long basis. Numerous observations of groups of wild horses have been made in the immediate vicinity of DW-21 and DW-58 through DW-61 over the last 17 years. Wild horse census data confirms these observations. A wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the North Sand Springs Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

Yes. Livestock are a contributing factor to the non-achievement of this Standard, largely for the same reasons cited above for the Upland Sites Standard. Use levels on key forage species have often exceeded those recommended for a healthy watershed with an appropriate composition of native grasses and forbs. Heavy or severe grazing use has occurred in this use area, by cattle, wild horses, or both. The current grazing system has contributed to inappropriate vegetative composition, production, cover, and structure. Wild horses, drought, historical heavy grazing

from 1870 to 1994, and lack of natural wildfire are also considered factors in the non-achievement of the Habitat Standard (see discussion above for the Upland Sites Standard).

North Sand Springs Valley Use Area – Paris Livestock

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No

Standard # 1. Upland Sites

No. Sheep grazing is a not a contributing factor to the non-achievement of this Standard. Sheep graze this use area during the mid winter period, during February or early March. Use occurs for approximately 12 days or less (total south & north) during this period, leaving key forage plants with adequate time to regrow. Soils are often frozen or snow covered. Sheep make use primarily on black sagebrush at this time. Use on black sagebrush can benefit the competitive position of native grasses and forbs. Use of black sagebrush was slight (5%) on June 12, 2008. Black sagebrush was observed to be of good vigor.

Standard # 3. Habitat

No. Sheep grazing is not considered a contributing factor to the non-achievement of this Standard. See the discussion above for the Upland Sites Standard. Wild horses, drought, and historical grazing from 1870 -1994 are considered contributing factors. To some extent, lack of natural wildfire may also be a contributing factor.

Pancake East Bench/Duckwater Valley Use Area – Duckwater Cattle Company

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Duckwater Cattle Company uses the south portion of the Pancake East Bench Use Area, which is west of the Duckwater Home Ranch, and has sometimes commonly been referred to as the "Duckwater Corner." This area is permitted for 43 cattle from 11/15 to 1/31 for 111 AUMs. This area has not been used every year by cattle. There are no key areas in this portion of the use area, and no historical monitoring data exists. The area has not been identified by BLM as a

priority area to monitor. There are roughly 22 sections, or about 14,000 acres of suitable grazing land that includes the milder slopes of the nearby mountains. The area is diverse, with over 11 soil mapping units (SMU) in the area. The main SMUs are 3805, 3645, and 3460. Together these three SMUs represent about 60% of the land area. The six main rangeland ecological sites within the three SMUs are as follows:

029XY087NV - Gravelly loam 5-8" SAVEB/ACHY
029XY017NV - Loamy 5-8" ATCO-ARSP5/ACHY
029XY008NV - Shallow Calcareous Loam 8-12" ARNO4/ACHY
028BY013NV - Silty 8-10" KRLA2/ACHY
029XY006NV - Loamy 8-10" ARTRW/ACHY-HECO26
029XY049NV - Sandy Loam 8-12" ARTRW/ACHY

Standard # 1. Upland Sites

No. The Upland Sites Standard is achieved for the Duckwater Corner Use Area.

Standard #2. Riparian and Wetland Sites

No. Duckwater Cattle Company does not use those springs that were evaluated during the spring and summer grazing period.

Standard # 3. Habitat

No. Livestock are not a contributing factor to the non-achievement of this Standard. Use levels on key forage species have often been within the limits recommended for a healthy watershed. Drought, historical heavy grazing from 1870 to 1994, and lack of natural wildfire are considered factors in the non-achievement of the Habitat Standard. Wild horse use is also not considered a contributing factor in failing to achieve this Standard for the Duckwater Corner Area.

Pancake East Bench/Duckwater Valley Use Area – Duckwater Shoshone Tribe

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes. Spring grazing (or a change to winter grazing) needs to occur in this salt desert shrub range in a way that strengthens native vegetation cover and litter, improves the herbaceous native grass and forb component, and allows the plant communities to respond within the dynamics of resilience, so that the communities do not cross the threshold to shrub dominance or invasive species dominance.

Standard # 1. Upland Sites

No. Cattle grazing is not a contributing factor to the non-achievement of this Standard. Cattle have grazed this use area in both even and odd years, during the critical growing period, during summer, and during fall, yet utilization studies show generally moderate or less utilization of key forage species.

Drought and historical heavy grazing from 1870 to 1994 are considered factors in the non-achievement of the Upland Sites Standard. Wild horses use this area regularly, on a year long basis, but observations and wild horse census data indicate the horses are using areas on the higher bench areas and hills, especially around Florio Spring and McClure Spring. Numerous observations of groups of wild horses have been made in the immediate vicinity of Florio Spring over the last 17 years. Wild horses have generally not been using the lower benches where key areas are located. Thus wild horse use is also not considered a contributing factor in failing to achieve this Standard.

Standard #2. Riparian and Wetland Sites

Yes. Cattle grazing is a contributing factor in the non-achievement of the Riparian Standard. Cattle use Florio, McClure, and Florio Well Springs throughout the spring and summer grazing period. Vegetative attributes including appropriate riparian species cover are all very poor for these areas. Key riparian plant species have been used heavily and severely. All three springs have been rated functioning at risk or non functioning.

Wild horses are also contributing factors in the non-achievement of this Standard. Wild horses are known to concentrate at all three springs during the spring and summer grazing period. Because there are few native springs in the area, wild horses concentrate activity and use at the few that are present. Drought magnifies the impacts caused by both wild horses and cattle. Water development may also be a contributing factor to the non attainment of the Riparian Standard.

Standard # 3. Habitat

No. Livestock are not a contributing factor to the non-achievement of this Standard, largely for the same reasons cited above for the Upland Sites Standard. Use levels on key forage species have often been within the limits recommended for a healthy watershed. Drought, historical heavy grazing from 1870 to 1994, and lack of natural wildfire are considered factors in the non-achievement of the Habitat Standard. Wild horse use is also not considered a contributing factor in failing to achieve this Standard.

Pancake East Bench/Duckwater Valley Use Area – Tom and Ellen Gardner

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Sheep grazing is a not a contributing factor to the non-achievement of this Standard. This sheep permit has not been activated in this use area for the last 13 years.

Standard #2. Riparian and Wetland Sites. No.

Standard # 3. Habitat No.

Pancake East Bench/Duckwater Valley Use Area – Paris Livestock

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Sheep grazing is a not a contributing factor to the non-achievement of this Standard. Sheep grazing occurs both west and east of the Big Louie Road. Sheep grazing has occurred in the vicinity of Key Areas DW-04, DW-22, and DW-64. Utilization studies show generally moderate or less utilization of key forage species at these areas. Sheep use occurs here during the mid winter period when soils are often frozen or snow covered. An abundant resource of black sagebrush occurs in this use area. Extensive research conducted over a thrity year period by the Forest and Range Experimental Station in western Utah has shown that mid winter use by sheep in black sagebrush range can improve the competitive status of native perennial cool season bunchgrasses, a component that needs improvement in this area. Use of black sage for the 2007 grazing year was light or less 0.5 miles west of Key Area DW-64 on March 18, 2008.

Standard #2. Riparian and Wetland Sites.

No. Sheep do not use Florio Spring, Florio Well Spring, or McClure Spring.

Standard # 3. Habitat

No. Sheep grazing is not a contributing factor to the non-achievement of this Standard, for the same reasons cited above for the Upland Sites Standard.

Pogues Station Use Area – Duckwater Shoshone Tribe

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? Yes.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? Yes.

Standard # 1. Upland Sites

Yes. Livestock are a contributing factor to the non-achievement of this Standard. This use area has been grazed every other year during the critical spring growth period and on into the summer months. KFPM utilization studies show use has often been heavy or severe of the key species winterfat or native cool season perennial bunchgrasses some years. Cattle have concentrated in winterfat areas. Winterfat is a half shrub that is best grazed during the winter grazing period. Spring grazing damages the ability of winterfat or the native grasses to produce carbohydrate reserves necessary for plant maintenance and production. This weakens the plants, making them more susceptible to drought caused mortality. Native grasses have continually been in poor vigor and production in the area. In recent years moisture has been unreliable to regrow native vegetation after the spring grazing period. Vegetation cover, vegetative composition and structure are inappropriate to site potential and are below levels considered desirable for healthy soil and watershed conditions. The amount and type of vegetation cover is inappropriate to site potential at Key Areas DW-40, DW-25, and DW-20. The location of water haul tanks for cattle has also contributed to inappropriate use of winterfat and/or native perennial cool season bunchgrasses during the critical spring growing period.

Wild horses, drought, and historical heavy grazing from about 1870 – 1995 (pioneer times) are also considered factors in the non-achievement of the Upland Sites Standard. Wild horses have access to this area year long. Wild horse census data combined with KFPM utilization studies and professional observations indicate that wild horses have contributed to heavy and severe use levels of key forage plants. A wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses.

Standard # 2. Riparian and Wetland Sites

No. This Standard is not applicable to the Pogues Station Use Area, since there are no public land riparian systems on this portion of the Duckwater Allotment.

Standard # 3. Habitat

Yes. Livestock are a contributing factor to the non-achievement of this Standard. Plant composition, production, and structure are inappropriate to ecological site potential and inappropriate to desired watershed function. The failure to achieve the Habitat Standard is also

attributable to wild horses, drought, historic heavy livestock grazing from 1870-1994, and possibly lack of natural wildfire.

Pogues Station Use Area – Thomas and Ellen Gardner

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Sheep grazing is a not a contributing factor to the non-achievement of this Standard. This sheep permit was activated for winter use in this area during the winter of 2007/2008. About 17 days were spent in the area. Otherwise, this permit has not been activated in this use area for the last 13 years.

Standard #2. Riparian and Wetland Sites.

No. This sheep band has not used Florio Spring, Florio Well Spring, or McClure Spring.

Standard # 3. Habitat

No. Sheep grazing is not a contributing factor to the non-achievement of this Standard, for the same reasons cited above for the Soils Standard.

Pogues Station Use Area – Paris Livestock

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Sheep grazing is a not a contributing factor to the non-achievement of this Standard. Sheep use occurs during the winter period on a short term basis. An abundant resource of black sagebrush occurs in this use area. Extensive research conducted over a thrity year period by the Forest and Range Experimental Station in western Utah has shown that mid winter use by sheep

in black sagebrush range can improve the competitive status of native perennial cool season bunchgrasses, a component that needs improvement in this area.

Standard #2. Riparian and Wetland Sites.

No. The sheep bands have not used Florio Spring, Florio Well Spring, or McClure Spring.

Standard # 3. Habitat

No. Sheep grazing is not a contributing factor to the non-achievement of this Standard, for the same reasons cited above for the Upland Sites Standard.

South Sand Springs Valley Use Area – Duckwater Shoshone Tribe

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? There has been no existing grazing management by the Tribe in this use area for the past 18 years or more. The Tribe has been unable to graze the area due to the lack of available forage caused by wild horse use, and the lack of a dependable water supply.

Standard # 1. Upland Sites

No. Cattle grazing is not a contributing factor to the non-achievement of this Standard. Very little grazing has occurred in the area by cattle in the last 18 years.

Wild horses and drought are considered contributing factors to the non attainment of this Standard. Wild horse use year long has caused the degradation of hundreds of acres of salt desert shrub range in the key area of Sand Springs Valley west of Portuguese Mountain. A wild horse census flight was conducted in May 2008 that recorded a direct count of 743 wild horses in the Pancake Herd Management Area (HMA). The current population estimate (January 2009) is 897 wild horses.

Standard #2. Riparian and Wetland Sites.

No. Cattle have not used Martiletti Spring or Portuguese Spring.

Wild horses, drought, and lack of development maintenance are considered contributing factors to the non attainment of this Standard. Martiletti Spring has been a well known wild horse mud hole for many many years.

Standard # 3. Habitat

No. Cattle grazing is not a contributing factor to the non-achievement of this Standard. Very little grazing has occurred in the area by cattle in the last 18 years.

Wild horses and drought are considered contributing factors to the non attainment of this Standard, for the same reasons above cited for the Soils Standard.

South Sand Springs Valley Use Area – Paris Livestock

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. Sheep grazing is not a contributing factor to the non-achievement of this Standard. Sheep have made grazing use of this area during the mid winter period. Sheep have been using the benches of the alluvial fans where snow is available, and have not used the sensitive winterfat depleted salt desert shrub sites in the valley bottom. Use has been primarily on black sagebrush, which was observed to be used light or less for the 2007 grazing year. Sheep have typically grazed in Sand Springs Valley for 10 days or less on the way south and 8 days or less on the way north. Little to no growing season use is made.

Standard #2. Riparian and Wetland Sites

No. Sheep have not used Martiletti Spring or Portuguese Spring.

Standard # 3. Habitat

No. Sheep grazing is not a contributing factor to the non-achievement of this Standard, for the same reasons cited above for the Upland Sites Standard.

Monte Cristo Allotment – Duckwater Cattle Company

Grazing related questions as part of the determination process

1. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform with the Guidelines? No.

2. Is it more likely than not that existing grazing management needs to be modified to ensure that the Fundamentals of rangeland health are met, or making significant progress toward being met? No.

Standard # 1. Upland Sites

No. This Standard is achieved.

Standard #2. Riparian and Wetland Sites

This Standard is not applicable to the Monte Cristo Allotment. There are no public land riparian systems in the allotment.

Standard # 3. Habitat

No. Cattle grazing is not a contributing factor to the non-achievement of this Standard. Cattle have not used this allotment for the last 6 years, from 2003 through 2008. Both the native range of the allotment and the crested wheatgrass seeding get deferred from cattle grazing use every year until late June, which is after seed ripe of the cool season native perennial bunchgrasses.

The rangeland monitoring data gathered for this allotment is generally favorable. The non-achievement of the Habitat Standard is related to other issues or conditions, such as drought, historical heavy ungulate grazing from 1870 – 1994 (pioneer times), and lack of natural wildfire.

PART 3. GUIDELINE CONFORMANCE REVIEW

STANDARD 1 GUIDELINES:

1.1 Livestock grazing management and wild horse and burro population levels are appropriate when in combination with other multiple uses they maintain or promote upland vegetation and other organisms and provide for infiltration and permeability rates, soil moisture storage, and soil stability appropriate to the ecological site within management units.

1.2 When livestock grazing management and wild horse and burro herd management alone are not likely to restore areas of low infiltration or permeability, land management treatments should be designed and implemented where appropriate.

1.3 Livestock grazing management and wild horse and burro herd management are adequate when significant progress is being made toward this Standard.

1. Bull Creek Use Area - Duckwater Cattle Company: Current livestock grazing management practices do not conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, Lampson Canyon, Freeland Canyon, or the upper sagebrush alluvial fan.

2. Bull Corner/Poison Patch Use Area – Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3. Land management treatments

(1.2) may be appropriate for portions of this use area, for example, in the main Poison Wash or in Wyoming sagebrush range in the north of the use area.

Bull Corner/Poison Patch Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices do not conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, in the main Poison Wash or in Wyoming sagebrush range in the north of the use area.

Bull Corner/Poison Patch Use Area – Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

Bull Corner/Poison Patch Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

Bull Corner/Poison Patch Use Area – Blue Diamond Oil Corporation: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

3. Duckwater Hills Use Area - Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3. Guideline 1.2 is not appropriate to the Duckwater Hills Use Area at this time.

Duckwater Hills Use Area - Duckwater Shoshone Tirbe: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

Duckwater Hills Use Area - Blue Diamond Oil Corporation: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

4. Green Springs Use Area - Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, near tree line on the upper sagebrush alluvial fan in the north or northeast portion of the use area.

5. Little Smoky Valley Use Area - Vince Ferreria: Current livestock grazing management practices do not conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for many portions of this use area, for example, throughout the Wyoming sagebrush monoculture or on the higher elevation sagebrush alluvial fans.

Little Smoky Valley Use Area - Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

Little Smoky Valley Use Area - Paris Livestock: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

6. North Sand Springs Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices do not conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans.

North Sand Springs Valley Use Area –Paris Livestock: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

7. Pancake East Bench/Duckwater Valley Use Area – Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans.

Pancake East Bench/Duckwater Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans, or the area of severely depleted range north of the reservation.

Pancake East Bench/Duckwater Valley Use Area – Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

Pancake East Bench/Duckwater Valley Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

8. Pogues Station Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices do not conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, the lower elevation salt desert shrub areas or the higher elevation sagebrush alluvial fans.

Pogues Station Use Area – Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

Pogues Station Use Area - Paris Livestock: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

9. South Sand Springs Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, the lower elevation salt desert shrub areas or the higher elevation sagebrush alluvial fans.

South Sand Springs Valley Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3.

Monte Cristo Allotment – Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 1.1 and 1.3. Land management treatments (1.2) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans, or areas of sagebrush range encroached by pinyon and juniper trees.

STANDARD 2 GUIDELINES:

2.1 Livestock grazing management and wild horse and burro population levels will maintain or promote sufficient vegetation cover, large woody debris, or rock to achieve proper functioning condition in riparian and wetland areas. Supporting the processes of energy dissipation,

sediment capture, groundwater recharge, and stream bank stability will thus promote stream channel morphology (e.g., width/depth ratio, channel roughness, and sinuosity) appropriate to climate, landform, gradient, and erosional history.
2.2 Where livestock grazing management and wild horse herd management are not likely to restore riparian and wetland sites, land management treatments should be designed and implemented where appropriate to the site.
2.3 Livestock grazing management and wild horse and burro herd management will maintain, restore or enhance water quality and ensure the attainment of water quality that meets or exceeds state standards.
2.4 Livestock grazing management and wild horse and burro herd management are adequate when significant progress is being made toward this standard.

7. Pancake East Bench/Duckwater Valley Use Area – Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 2.1 to 2.4. Duckwater Cattle Company has not used springs in this use area during the spring/summer grazing period.

Pancake East Bench/Duckwater Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices do not conform to Guidelines 2.1, 2.3, and 2.4. Land management treatments (2.2) such as spring source redevelopment, may be appropriate for one or more spring sources in this area.

Pancake East Bench/Duckwater Valley Use Area – Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 2.1 to 2.4.
Pancake East Bench/Duckwater Valley Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 2.1 to 2.4. Paris Livestock does not use these springs.

9. South Sand Springs Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices conform to Guidelines 2.1, 2.3, and 2.4. Duckwater Shoshone Tribe has not used Sand Springs Valley for about 18 years. Land management treatments (2.2) such as spring source redevelopment, may be appropriate for one or more spring sources in this area.

South Sand Springs Valley Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 2.1, 2.3, and 2.4. Paris Livestock does not use Martiletti Spring or Portuguese Spring.

STANDARD 3 GUIDELINES:

3.1 Livestock grazing management and wild horse and burro population levels will promote the conservation, restoration, and maintenance of habitat for threatened and endangered species, and other special status species as may be appropriate.
3.2 Livestock grazing intensity, frequency, season of use and distribution and wild horse and burro population levels should provide for growth and reproduction of those plant species needed to reach long-term land use plan objectives. Measurements of ecological condition and trend/utilization will be in accordance with techniques identified in the Nevada Rangeland Monitoring Handbook.

3.3 Livestock grazing management and wild horse and burro management should be planned and implemented to allow for integrated use by domestic livestock, wildlife, and wild horses consistent with land use plan objectives.
3.4 Where livestock grazing management and wild horse and burro herd management alone are not likely to achieve habitat objectives, land treatments may be designed and implemented as appropriate.
3.5 When native plant species adapted to the site are available in sufficient quantities, and it is economically and biologically feasible to establish or increase them to meet management objectives, they will be emphasized over non-native species.
3.6 Livestock grazing management and wild horse and burro herd management are adequate when significant progress is being made toward this Standard.

1. Bull Creek Use Area - Duckwater Cattle Company: Current livestock grazing management practices do not conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, Lampson Canyon, Freeland Canyon, or the upper sagebrush alluvial fan.

2. Bull Corner/Poison Patch Use Area – Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, in the main Poison Wash or in Wyoming sagebrush range in the north of the use area.

Bull Corner/Poison Patch Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices do not conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, in the main Poison Wash or in Wyoming sagebrush range in the north of the use area.

Bull Corner/Poison Patch Use Area – Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

Bull Corner/Poison Patch Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

Bull Corner/Poison Patch Use Area – Blue Diamond Oil Corporation: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

3. Duckwater Hills Use Area - Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Guideline 3.4 is not appropriate to the Duckwater Hills Use Area at this time.

Duckwater Hills Use Area - Duckwater Shoshone Tirbe: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Guideline 3.4 is not appropriate to the Duckwater Hills Use Area at this time.

Duckwater Hills Use Area - Blue Diamond Oil Corporation: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

4. Green Springs Use Area - Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, near tree line on the upper sagebrush alluvial fan in the north or northeast portion of the use area.

5. Little Smoky Valley Use Area - Vince Ferreria: Current livestock grazing management practices do not conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for many portions of this use area, for example, throughout the Wyoming sagebrush monoculture or on the higher elevation sagebrush alluvial fans.

Little Smoky Valley Use Area - Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for many portions of this use area, for example, throughout the Wyoming sagebrush monoculture or on the higher elevation sagebrush alluvial fans.

Little Smoky Valley Use Area - Paris Livestock: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for many portions of this use area, for example, throughout the Wyoming sagebrush monoculture or on the higher elevation sagebrush alluvial fans.

6. North Sand Springs Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices do not conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans.

North Sand Springs Valley Use Area –Paris Livestock: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

7. Pancake East Bench/Duckwater Valley Use Area – Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans.

Pancake East Bench/Duckwater Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans, the higher elevation areas where pinyon and juniper trees have encroached on sagebrush ecological sites, or the area of "nuked" range north of the reservation.

Pancake East Bench/Duckwater Valley Use Area – Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

Pancake East Bench/Duckwater Valley Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

8. Pogues Station Use Area– Duckwater Shoshone Tribe: Current livestock grazing management practices do not conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, the lower elevation salt desert shrub areas or the higher elevation sagebrush alluvial fans.

Pogues Station Use Area – Thomas and Ellen Gardner: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

Pogues Station Use Area - Paris Livestock: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

9. South Sand Springs Valley Use Area – Duckwater Shoshone Tribe: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, the lower elevation salt desert shrub areas or the higher elevation sagebrush alluvial fans.

South Sand Springs Valley Use Area – Paris Livestock: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6.

Monte Cristo Allotment – Duckwater Cattle Company: Current livestock grazing management practices conform to Guidelines 3.1, 3.2, 3.3, and 3.6. Land management treatments (3.4) may be appropriate for portions of this use area, for example, the higher elevation sagebrush alluvial fans, or areas of sagebrush range encroached by pinyon and juniper trees.

NORTHEASTERN GREAT BASIN AREA STANDARDS AND GUIDELINES VEGETATION MANAGEMENT GUIDELINES—Approved in March 2004 and added as Appendix A.

Desired conditions: Communities will exhibit or be progressing toward a healthy, productive, diverse population of native and or desirable plant species, and functioning disturbance processes appropriate to the site characteristics.

SALT DESERT SHRUBLANDS:

1. Grazing should generally be limited to very early season or dormant season rather than year round. If very early season grazing is permitted or prescribed to control cheatgrass early in spring, grazing should be terminated early enough to allow perennial plant species to set seed.
2. After disturbance such as fire, insect infestation, and periods of less than desirable grazing management, consider resting communities for an appropriate amount of time relative to moisture conditions.
3. All management and revegetation strategies must consider current site conditions and associated thresholds (i.e. current status in state-and-transition model appropriate for the site). In addition, factors such as ecological site, presence of undesirable species (e.g., invasive or noxious species), adjacent plant communities, current use or management status, and position in the watershed must be considered prior to treatment application.
4. Encourage research and field trials in salt desert shrub communities to determine the best effective methods of restoration.

Strategies:
1) Management practices to maintain healthy ecological sites should include: prescribed fire, prescribed natural fire, mechanical manipulations, specialized prescription herbivory, chemical treatments, re-seeding, or combinations of treatments.
2) Special emphasis must be placed on management activities where public safety at wildland-urban interfaces is jeopardized.

SAGEBRUSH/BUNCHGRASS RANGELANDS:

Guidelines:
1) Create and maintain a diversity of sagebrush age and cover classes on the landscape through the use of prescribed fire, prescribed natural fire, mechanical, biological, and/or chemical means to provide a variety of habitats and productivity conditions.
2) Vegetation treatments should be of appropriate size to meet land management objectives. Where possible, inclusions of intact sagebrush should be left scattered within the treated area or in relatively close proximity to provide a seed source for recruitment. Distribution of residual plants will determine in part, the time period required for the successional process to proceed toward sagebrush recolonization.
3) All treatments must consider current site conditions and associated thresholds (i.e., current status in state-and-transition model appropriate for the site). In addition, factors such as ecological site, presence of undesirable species (e.g., invasive or noxious species), adjacent plant communities, current use or management status, and position in the watershed must be considered prior to treatment application.
4) Where initial condition has a depleted herbaceous understory, vegetation treatment should include seeding with desirable species suited or adapted to site conditions. Seeding methods and dates should be appropriate to the plant materials and site conditions.
5) Where a mosaic of age and cover classes already exists, maintain landscape diversity through fuels management and periodic disturbance. Recognize the system is dynamic, and suitability of the plant community for any given specie or group of species will change over time. Maintenance of diverse habitat conditions will provide a continuous suite of seasonal habitats over time.
6) Where pinyon pine and/or juniper trees have encroached into sagebrush communities, use best management practices to remove trees and re-establish understory species.

Strategies:
1) Management practices to maintain healthy ecological sites should include: prescribed fire, prescribed natural fire, mechanical manipulations, specialized prescription herbivory, chemical treatments, re-seeding, or combinations of treatments.
2) Special emphasis must be placed on management activities where public safety at wildland-urban interfaces is jeopardized.

NON-INDIGENOUS ANNUAL GRASSLANDS
DEFINITIONS:

Cheatgrass/Annual Grass Monoculture: Areas dominated by cheatgrass or other non-indigenous

annual grass species that have crossed a threshold and lost the ability to recover naturally due to lack of perennial species.

Cheatgrass/Annual Grass Dominant: Recently burned areas having native perennial species present with potential for natural recovery with appropriate management of non-indigenous annual grasses.

Cheatgrass/Annual Grass Infested: Shrub dominated communities with a limited understory of native perennial species, but a significant amount of annual grasses, exhibiting a high potential to be converted to non-indigenous annual grass dominated ranges.

Desired Conditions: Communities will exhibit or be progressing toward a healthy, productive, diverse population of native and or desirable plant species, and functioning disturbance processes appropriate to the site characteristics.

Guidelines Common to All:
1) Encourage research and field trials in all non-indigenous annual grass ranges to determine effectiveness of control on recovery and rehabilitation efforts in perennial plant communities.
2) Non-indigenous annual grass monoculture and dominated ranges must follow a successional process from annual/perennial grass mix to a shrub/grass community. Large scale seeding of shrubs should be discouraged, and small scale (islands), of intensively managed shrub seedings/transplants encouraged.
Guidelines for Cheatgrass/Annual Monoculture:
1) Break up the monoculture through the use of chemical, biological, and/or mechanical means to stop the spread of the effected area especially in areas that border critical habitat. Use native and non-native desirable species known to be fire tolerant and resistant during the late summer fire season.
2) Use the best available information to determine the most effective processes to break up the monoculture, reduce the cheatgrass seed bank, and restore native plant communities.

Guidelines for Cheatgrass Dominant and Cheatgrass infested ranges:
1) Encourage innovative approaches to control cheatgrass, such as, strategically controlled grazing and the use of prescribed fire to favor production of perennial species.
2) Seed areas with perennial grass species to reduce the dominance of cheatgrass.

Strategies:
1) Management practices to maintain healthy ecological sites should include: prescribed fire, prescribed natural fire, mechanical manipulations, specialized prescription herbivory, chemical treatments, re-seeding, or combinations of treatments.
2) Special emphasis must be placed on management activities where public safety at wildland-urban interfaces is jeopardized.

PART 4. MANAGEMENT PRACTICES TO ACHIEVE STANDARDS AND CONFORM WITH GUIDELINES

The following livestock management practices are presented in order to achieve or make progress towards achieving the Standards for Rangeland Health and conforming to the Guidelines. The recommended practices are presented following personal meetings with the grazing permittees (Duckwater Cattle Company and the Duckwater Shoshone Tribe) to discuss several options for changing management practices that was provided to them in May, 2009 in a draft Standards Determination Document (SDD).

Management practices or actions are also presented below in order to achieve or make progress towards achieving Standards and conforming to Guidelines for riparian areas that are currently not achieving or conforming.

Duckwater Cattle Company – Bull Creek/North Railroad Valley - Duckwater Hills Use Area, Bull Corner/Poison Patch Use Area, Green Springs Use Area, and the Monte Cristo Allotment

According to the Stipulation for Dismissal of Appeals of April, 1996 the Bull Creek/North Railroad Valley and Duckwater Hills Use Areas are managed together as one grazing unit for spring and winter grazing. Thus the designation, ***Bull Creek/North Railroad Valley - Duckwater Hills Use Area.***

Bull Creek/North Railroad Valley - Duckwater Hills Use Area

Livestock have been identified as a contributing factor in failing to achieve the Standards for the Bull Creek/Duckwater Hills Use Area. Livestock management practices are not conforming to the Guidelines for this use area.

Grazing use would occur in accordance with a voluntary non-use grazing agreement signed by Duckwater Cattle Company and the Ely District (Egan Field Office) BLM. The agreement would be for a period of five years and implements changes in grazing management practices as follows:

1. The cattle stocking level and season of use would be changed in the Bull Creek/North Railroad Valley - Duckwater Hills Use Area for spring grazing from: 800 Cattle from 3/15 to 5/15 (1,631 AUMs) to: 550 Cattle from 3/15 to 5/01 (868 AUMs). This would place 763 AUMs in voluntary non-use, or about 47% of the former active AUMs. This would allow for the growth or regrowth and proper physiology of native cool season perennial bunchgrasses, winterfat, and forbs during the critical growing period. This would improve the herbaceous component, improve soils, and provide for resilient, healthier range. Residual feed would be left for dormant or winter season grazing. This would provide an option to allow prescribed grazing of cheatgrass in spring.

Option #1 – An option would be included in the grazing permit allowing an extension of winter grazing use in the Bull Creek/North Railroad Valley - Duckwater Hills Use Area or the Bull Corner/Poison Patch Use Area for one month (28 days). This would allow winter grazing until February 28. This would be done in conjunction with deferring cattle use until after April 15.

Option #2 - An option would be included in the grazing permit allowing rotation of grazing use between the northern and southern portions of the Bull Creek Use Area holding cattle with water.

2. The cattle stocking level and season of use would be changed in the Green Springs Use Area for summer grazing from: 800 Cattle from 5/23 to 6/20 (763 AUMs) to: 550 Cattle from 5/09 to 6/20 (778 AUMs).

3. The cattle stocking level would be changed in the Green Springs Use Area for fall grazing upon returning from the Monte Cristo Allotment or the Forest Service Allotment from: 335 Cattle from 9/19 to 9/30 (132 AUMs) to: 228 Cattle from 9/19 to 9/30 (90 AUMs).

4. The remaing portions of the current grazing permit for the Duckwater Allotment as listed by the Stipulation For Dismissal of Appeals of April, 1996 would remain the same, including the small public land sheep permit (66 AUMs). The current grazing permit for the Monte Cristo Allotment as listed by the Stipulation For Dismissal of Appeals of August, 1999 would remain the same.

The entire voluntary non-use agreement is included as Appendix II to this SD (Grazing Permit Terms and Conditions – p. 188).

From the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Section A. 1-8. Develop grazing systems to control or rest grazing use on winterfat sites after March 1 or when the critical growing season begins. Allow spring grazing use during the critical growing period if a grazing rotation system that provides rest from grazing during the critical growing period at least every other year for all areas is in place. Utilization during the critical growth period should not exceed 35% under any circumstances. Utilization in the Bull Creek Use Area for winterfat should not exceed 50% by the off date of May 1 or later if cattle are authorized to graze after May 1.

Bull Corner/Poison Patch Use Area

It has been identified that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have not been identified as a contributing factor in failing to achieve the Standards for the Bull Corner/Poison Patch Use Area (the case is not clear cut). Livestock management practices are conforming to the Habitat Guidelines (3) for this use area.

1. Coordinate with Duckwater Cattle Company to establish temporary water hauling to portions of the use area to distribute winter grazing. New sites could be established, or existing sites as identified in the Stipulation of April, 1996 could be used. It is recognized that not all water haul sites will necessarily be used at any one point in time during each year, and locations used in any year may vary, to facilitate livestock movement. Additional sites may be identified through coordination, cooperation, and consultation by the BLM and the permitee.
2. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural,

special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.

Green Springs Use Area

It has been identified that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have not been identified as a contributing factor in failing to achieve the Standards for the Green Springs Use Area. Livestock management practices are conforming to the Guidelines for this use area.

1. Coordinate with the grazing permittee to establish temporary water hauling to portions of the use area to distribute summer grazing. New sites could be established, or existing sites as identified in the Stipulation of April, 1996 could be used.
2. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural, special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.
3. Continue to pursue opportunities to collaborate with Duckwater Cattle Company or other public land interest groups to develop Monte Cristo Well and pipe water to the Green Springs Use Area that would distribute livestock use. This may also benefit wild horses and wildlife.

Monte Cristo Allotment

It has been identified that existing grazing management does not need to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have been not identified as a contributing factor in failing to achieve the Standards for the Monte Cristo Allotment. Livestock management practices are conforming to the Guidelines for this use area.

Livestock Management Practices:

1. Continue grazing management in accordance with the Stipulation for Dismissal of Appeal dated August 1999. The Stipulation may need minor modifications.
2. Continue to pursue opportunities to collaborate with Duckwater Cattle Company or other public land interest groups to develop Monte Cristo Well and pipe water to areas that would distribute livestock use in either the Monte Cristo or Duckwater Allotments and may also benefit wild horses and wildlife.

Duckwater Shoshone Tribe - Bull Corner/Poison Patch Use Area, North Sand Springs Valley Use Area, Pogues Station Use Area, Duckwater Hills Use Area, Pancake East Bench/Duckwater Valley Use Area, and South Sand Springs Valley Use Area.

Livestock have been identified as a contributing factor in failing to achieve the Upland Sites and Habitat Standards for the Bull Creek Corner/Poison Patch Use Area, the North Sand Springs Use Area, and the Pogues Station Use Area. Livestock are not conforming to the Guidelines for these use areas. Livestock have been identified as a contributing factor in failing to achieve the Riparian Standard in the Pancake Area. It has also been identified that livestock practices need to be improved in the Pancake Area. Livestock are not a contributing factor in failing to achieve

Standards in the Duckwater Hills and South Sand Springs Valley Use Areas. Livestock are conforming to the Guidelines in those two use areas.

Duckwater Shoshone Tribe Current Grazing Permit

The Tribe's current grazing permit has been issued for the period 3/1/2007 to 2/28/2017. Livetsock management practices are in accordance with the livestock grazing agreement signed July 2 and July 11, 2001. This livestock grazing agreement authorizes grazing use according to the following table:

ANNUAL GRAZING USE		
Livestock Number/Kind	Permitted Use AUMs (Active AUMs)	Season-of-Use
383 Cattle	201	4/15 - 4/30
858 Cattle	874	5/1 - 5/31
729 Cattle	2684	6/1 - 9/20
	Rest	9/21 - 11/20
400 Cattle	934	11/21 – 1/30
	Total = 4,693 AUMs	

Changes to Livestock Grazing Management Practices

Grazing use would occur in accordance with a voluntary non-use grazing agreement signed by the Duckwater Shoshone Tribe and the Ely District (Egan Field Office) BLM. The agreement would be for a period of five years and implements changes in grazing management practices as follows:

ANNUAL GRAZING USE		
Livestock Number/Kind	Permitted Use AUMs (Active AUMs)	Season-of-Use
400 Cattle	223	5/15 – 5/31
600 Cattle	2407	6/1 – 9/30
	Rest	10/1 - 10/31
400 Cattle	1986	11/01 – 03/31
	Total = 4,616 AUMs	

The above change would place 852 AUMs of spring grazing in voluntary non-use, or about 79% of the former active AUMs. This deferred grazing system, with short term grazing in spring combined with a rotation grazing system, would allow for the growth or regrowth and proper physiology of native cool season perennial bunchgrasses, winterfat, and forbs during the critical growing period. This would improve the herbaceous component, improve soils, and provide for resilient, healthier range. Residual feed would be left for dormant or winter season grazing. Deviations from these livestock numbers and seasons of use may be authorized on an annual

basis where such deviations would not prevent attainment of the multiple use resource objectives for the Duckwater Allotment. Flexibility in areas of use within use areas and stocking level flexibility by use area may be allowed on an annual basis, however permitted use will not exceed 4,249 AUMs. Stocking levels by use area will be determined by BLM and the Tribe on an annual basis and will be based on monitoring information.

The entire voluntary non-use agreement is included as Appendix II to this SD.

From the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Section A. 1-8. Develop grazing systems to control or rest grazing use on winterfat sites after March 1 or when the critical growing season begins. Allow spring grazing use during the critical growing period if a grazing rotation system that provides rest from grazing during the critical growing period at least every other year for all areas is in place. Utilization during the critical growth period should not exceed 35% under any circumstances. Utilization in the Pogues Station, Pancake East Bench, Bull Creek Corner/Poison Patch, Duckwater Hills, and North Sand Springs Valley Use Areas for winterfat should not exceed 50% by the off date of May 1 or later if cattle are authorized to graze after May 1.

1. A rotational grazing system would be a term and condition of the permit whereby the Tribe's north area would be grazed in even years and the south area grazed in odd years.
2. By maintaining some grazing in sagebrush rangelands in the higher elevation areas such as Red Rock Summit as late spring/summer, after the critical growth period and after seed ripe of cool season perennial bunchgrasses, would take pressure off the salt desert shrub range sites. The salt desert shrub range is best used for maintenance of cattle during winter. Establish temporary water haul sites in higher elevation sagebrush areas for summer cattle grazing after seed ripe of key native grasses.
3. Authorize summer grazing of galleta grass areas on the Pancake East Bench Area following seed ripe of the cool season native bunchgrasses.
4. Relocate water haul sites away from sensitive winterfat dominant salt desert shrub sites.
5. BLM and the Tribe could cooperate on a vegetation treatment project in suitable higher elevation areas where pinyon and juniper trees have encroached on sagbrush habitat, or where sagebrush dominates with or without an appropriate herbaceous understory. Other stake holders or cooperators could be sought for help with funding. Water is a limiting facor. Water hauls may need to be authorized. A fenced treatment may or may not be an option. Treatment could include prescribed burning, mechanical treatment, or thinning. The treatment would benefit watershed values, livestock, wild horses, and wildlife.
10. BLM and the Tribe could cooperate on projects to redevelop and/or protect Florio, McClure, Florio Well, and Big Louie Spring to achieve or make progress towards achieving Riparian Standards. In the case of McClure Spring, a portion of the two track road near the spring should be closed. This may be the case near other spring sources.

Bull Corner/Poison Patch Use Area

It has been identified that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have been identified as a contributing factor in failing to achieve the Standards for the

Bull Corner/Poison Patch Use Area

1. Coordinate with the Duckwater Shoshone Tribe to establish temporary water hauling to portions of the use area to distribute spring, summer, or winter grazing. New sites could be established, or existing sites could be used. It is recognized that not all water haul sites will necessarily be used at any one point in time during each year, and locations used in any year may vary, to facilitate livestock movement. Additional sites may be identified through coordination, cooperation, and consultation by the BLM and the Tribe.
2. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural, special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.
3. The current water haul site located in the main Poison Wash at T. 14N., Range 55E., Section 12 shall be moved to a new location at least 0.5 miles away from the winterfat dominant wash.

North Sand Springs Valley Use Area

It has been identified that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have been identified as a contributing factor in failing to achieve the Standards for the North Sand Springs Use Area

1. Coordinate with the Duckwater Shoshone Tribe to establish temporary water hauling to portions of the use area to distribute spring, summer, or winter grazing. New sites could be established, or existing sites could be used. It is recognized that not all water haul sites will necessarily be used at any one point in time during each year, and locations used in any year may vary, to facilitate livestock movement. Additional sites may be identified through coordination, cooperation, and consultation by the BLM and the Tribe.
2. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural, special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.

Pogues Station Use Area

It has been identified that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have been identified as a contributing factor in failing to achieve the Standards for the Pogues Station Use Area

1. Coordinate with the Duckwater Shoshone Tribe to establish temporary water hauling to portions of the use area to distribute spring, summer, or winter grazing. New sites could be established, or existing sites could be used. It is recognized that not all water haul sites will necessarily be used at any one point in time during each year, and locations used in any year may vary, to facilitate livestock movement. Additional sites may be identified through coordination, cooperation, and consultation by the BLM and the Tribe.
2. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural,

special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.

Pancake East Bench Use Area

It has been identified that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have been identified as a contributing factor in failing to achieve the Riparian Standard in the Pancake Area. Livestock have not been identified as a contributing factor in failing to achieve the Upland and Habitat Standards for the Panacke East Bench Use Area

1. Coordinate with the Duckwater Shoshone Tribe to establish temporary water hauling to portions of the use area to distribute spring, summer, or winter grazing. New sites could be established, or existing sites could be used. It is recognized that not all water haul sites will necessarily be used at any one point in time during each year, and locations used in any year may vary, to facilitate livestock movement. Additional sites may be identified through coordination, cooperation, and consultation by the BLM and the Tribe.
2. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural, special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.
3. The Duckwater Shoshone Tribe and BLM will cooperate on range improvement projects to construct spring exclosures around McClure Spring and Young Florio Spring. Water will be piped outside the exclosures for livestock, wild horses, and wildlife. A cooperative agreement will be prepared and signed for maintenance of the exclosures. Maintenance will be assigned to the Tribe. Until such time as these range improvements are constructed, the Tribe will herd cattle away from these riparian sources when cattle are authorized to graze the Pancake East Bench Pasture in order to maintain the riparian objective of moderate use (50% or less for spring/summer use) on key riparian grasses, shrubs, or trees.

Duckwater Hills Use Area

It has been identified that existing grazing management needs to be modified to ensure that the Fundamentals of Rangeland Health are met, or making significant progress toward being met. Livestock have not been identified as a contributing factor in failing to achieve the Upland and Habitat Standards for the Duckwater Hills Use Area.

1. Coordinate with the Duckwater Shoshone Tribe to establish temporary water hauling to portions of the use area to distribute spring, summer, or winter grazing. New sites could be established. It is recognized that not all water haul sites will necessarily be used at any one point in time during each year, and locations used in any year may vary, to facilitate livestock movement. Additional sites may be identified through coordination, cooperation, and consultation by the BLM and the Tribe.
2. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural, special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.

South Sand Springs Valley Use Area

The South Sand Springs Valley Use Area will continue to be closed to cattle grazing during the period of the new grazing agreement due to continued degraded forage conditions and limited forage productivity and availability.

Vince Ferreira – Little Smoky Valley Use Area

Livestock have been identified as a contributing factor in failing to achieve the Upland Sites and Habitat Standards for the Little Smoky Valley Use Area. Livestock are not conforming to the Guidelines for this use area.

Options for changing livestock management practices:

1. Coordinate with the Battle Mountain District to renew the cattle grazing permit with an appropriate National Environmental Policy Act document.
2. Decide not to renew the permit at this time due to workloads, priorities, and funding.
3. Allocate a reasonable amount of forage to this permit based on monitoring data. Monitoring data shows this should be a 150 cow permit for the winter period 11/1 to 3/31 (5 months – 745 active AUMs). The current authorized permit is for 414 cattle from 10/1 – 3/31 for 2,481 AUMs.
4. Continue to require water hauling which is necessary to distribute cattle use for dormant season, winter grazing.
5. Monitor the rangelands at the request of the permittee to determine if any summer grazing could be authorized in the sagebrush range in the south of the use area, or other areas of Little Smoky Valley. The sagebrush range in this area is expected to be shrub dominant, with a plant composition inappropriate to site potential and lacking an herbaceous understory. Do appropriate NEPA clearances associated with this request.
6. BLM and the grazing permittee could cooperate on building a fence on the southern boundary of the use area where it borders the Sand Springs (0086) allotment. If summer grazing in big sagebrush range were authorized after seed ripe, a fence would be needed to prevent cattle drift south to the Tonopah allotment.
7. From the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Section A. 1-8. Develop grazing systems to control or rest grazing use on winterfat sites after March 1 or when the critical growing season begins. Allow spring grazing use during the critical growing period if a grazing rotation system that provides rest from grazing during the critical growing period at least every other year for all areas is in place. Utilization during the critical growth period should not exceed 35% under any circumstances.
8. Locate water haul sites at least 0.5 miles away from winterfat dominated sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural, special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.

Duckwater Allotment - Allowable Use Levels – all herbivores

1. An allowable use level will be established as 40% of the current year's growth by weight for any spring use (3/1 – 5/31) of the key native cool season perennial bunchgrass species Indian ricegrass, needleandthread, bluebunch wheatgrass, or bottlebrush squirreltail in any native pasture evaluated by this SD in the Duckwater Allotment. This is to help achieve sage grouse habitat objectives in the native ranges. An allowable use level will be established as 50% of the current year's growth by weight for yearlong use of these species. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
2. An allowable use level will be established as 35% of the current year's growth by weight for any critical growing season use (generally 3/1 – 4/15) of the key shrub winterfat. An allowable use level will be established as 50% of the current year's growth by weight for any total season spring use (3/1 – 5/31) of the key shrubs winterfat, sickle saltbush, black sagebrush, four wing saltbush, (or other shrub determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment.
3. An allowable use level will be established as 60% of the current year's growth by weight for winterfat, black sagebrush, sickle saltbush, four wing saltbush, (or other appropriate shrub) for fall/winter grazing in any pasture evaluated by this SD in the Duckwater Allotment. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
4. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

Monte Cristo Allotment – Allowable Use Levels

1. An allowable use level will be established as 60% of the current year's growth by weight for summer use of crested wheatgrass in the Monte Cristo Seeding. Utilization will be measured at established key grazing areas or other sites representative of the grazing patterns in the seeding.
2. An allowable use level will be established as 50% of the current year's growth by weight for the key species Indian ricegrass, needleandthread, and winterfat in the native pasture of the Monte Cristo Allotment. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
3. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

RECOMMENDED PRACTICES - RIPARIAN AREAS

1. McClure Spring (Pancake East Bench Use Area)
2. Florio Spring (Pancake East Bench Use Area)
3. Florio Well Spring (Pancake East Bench Use Area)
4. Martiletti Spring (South Sand Springs Use Area)
5. Portuguese Spring (South Sand Springs Use Area)

The following options could apply to all or one of the spring areas above:

Option - Improve livestock grazing management of the area by limiting grazing use during the spring and summer months, when the spring is generally flowing, and when riparian species are growing.
Option - Require maintenance of the water development so that no water is lost through faults in water tanks, troughs, and pipelines.
Option - Protect the spring system by constructing an exclosure capable of keeping wild horses, cattle, and sheep from grazing key riparian vegetative cover. Maintain water outside the exclosure by piping water to troughs and/or a small reservoir for wild horses, livestock, and wildlife. Water may be provided near or some distance away from the spring source. Consider allowing short term grazing by cattle inside the exclosure periodically to prevent dense "mats" of decadent riparian vegetation. Assign maintenance responsibility for any new improvements.
Option - Alter the road configuration near the spring so that uneeded roads are closed and reclaimed to vegetative cover.

From the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Section A. 1-8. Place troughs connected with spring developments outside of riparian and wetland habitats to reduce livestock trampling damage to wet areas. Control trough overflow at springs with float valves or deliver the overflow back into the native channel.

RECOMMENDED PRACTICES - STATE AND TRANSITION MODEL

The Eastern Nevada Landscape Restoration Project in cooperation with the University of Nevada has developed State and Transition Models for many rangeland ecological sites within the MLRA (Major Land Resource Area) 28B, the Central Nevada Basin and Range Area. MLRA 28B includes a great portion of the Duckwater Allotment and all of the Monte Cristo Allotment.

The models do an excellent job of describing changes and transitions that have been taking place in native range sites throughout the Great Basin Area, and eastern Nevada in particular. The management keys for the State and Transition Models have presented management strategies for maintaining native ecological sites in healthy, resilient, productive states that are able to respond to natural disturbances such as fire, drought, flooding, insects, or disturbances such as herbivory in an appropriate way. The management strategies are designed to prevent further invasive species spread. Management strategies appropriate to the Duckwater Allotment are presented in Appendix IV.

WILD HORSE HERD MANAGEMENT PRACTICES

NE RAC'S INTENDED USE OF STANDARDS AND GUIDELINES

The Preamble to the Northeastern Great Basin Area Standards and Guidelines states "The RAC in recommending these Standards and Guidelines urges the Bureau to aggressively implement the management strategies to expeditiously establish, achieve and maintain Appropriate Management Levels (AML's) of wild horses and burros within HMA's and remove them from outside HMA's.

Standards and Guidelines will be implemented through terms and conditions of grazing permits, leases, and other authorizations, grazing-related portions of activity plans (including Allotment Management Plans), and through range improvement-related activities.

Standards and Guidelines for wild horses and burros will be implemented through control of population levels within established HMA's, related portions of activity plans (including Allotment Management Plans), and through range restoration related activities.

However, actions will be taken to establish significant progress toward conformance as soon as sufficient data are available to make informed changes relative to numbers of wild horses and burros, herd management decisions and grazing practices.

Ely District BLM Record of Decision (ROD) and Approved Resource Management Plan (RMP) (August, 2008)

The Pancake Wild Horse herd Management Area is managed at an initial Appropriate Management Level (AML) of from 240 – 493 wild horses according to the Ely ROD/RMP.

Options for Wild Horse Herd Management

The following wild horse herd management practices are presented as general options in order to achieve or make progress towards achieving the Standards for Rangeland Health and conforming to the Guidelines.

1. Prioritize a wild horse gather of the Pancake HMA as soon as possible and gather to the lower limit of the AML range as established in the ROD/RMP of from 240 to 493 wild horses. The current population estimate (January 2009) is 897 wild horses.
2. Range monitoring data supports the need to reevaluate the wild horse numbers in the Pancake HMA. Further analysis of monitoring data for the remaining portion of the entire Pancake HMA (other than the Duckwater and Monte Cristo Allotments) would be required. The remaining portion of the HMA includes the South Pancake, Six Mile, and South Newark Grazing Allotments.
3. Try and gather the Pancake HMA in summer or winter, 2011. At an annual growth rate of 20%, and assuming no additions or subtractions from adjacent HMAs, and a 5% death loss, the population estimate in May 2011 would be 1,472 wild horses. Resource deterioration would continue.

Prepared by:

/s/ *Mark Lowrie*	*9-9-2009*
Mark Lowrie Rangeland Management Specialist	Date

/s/ *Amanda Anderson*	*9/10/09*
Amanda Anderson Rangeland Management Specialist	Date

Reviewed by:

/s/ *Mark D'Aversa*	*09/09/2009*
Mark D'Aversa Soil/water/air/floodplains/riparian/wetlands	Date

/s/ *Mindy Seal for*	*9-8-09*
Bonnie Million Noxious and invasive non-native species	Date

/s/ *Ruth Thompson*	*9/11/2009*
Ruth Thompson Wild horses and burros	Date

/s/ *Cameron Collins*	*9/9/09*
Cameron Collins Wildlife/migratory birds/special status animals and plants	Date

/s/ *Dave Jacobson*	*9-9-09*
Dave Jacobson Wilderness	Date

/s/ *Gina Jones*	*9/10/2009*
Gina Jones Ecology	Date

I concur:

/s/ *Chris Mayer*	*09/14/2009*
Chris Mayer Supervisory Rangeland Management Specialist Egan Field Office	Date

/s/ *Jeffrey A. Weeks*	*9-15-09*
Jeffrey A. Weeks Field Manager Egan Field Office	Date

APPENDIX I
MONITORING DATA SUMMARY

1. DUCKWATER ALLOTMENT, MULTIPLE USE AREAS MONITORING DATA

1.1 Major Land Resource Area and Soils

The Duckwater Allotment occurs within Major Land Resource Areas (MLRA) 028B, the Central Nevada Basin and Range Area, and MLRA 029, the Southern Nevada Basin and Range Area. That portion of the Duckwater Allotment and the Monte Cristo Allotment in White Pine County occur primarily on an area dominated by soils on fan piedmonts (General Soil Mapping Units No. 11, 12, 16). To a lesser degree, this portion of the permit renewal area also occurs in an area dominated by soils on hills and mountains (General Soil Mapping Units No. 20, 28 – General Soil Map, Western White Pine County, 1990). Soil types vary through the Duckwater Allotment. Hundreds of soil associations have been identified by both the Western White Pine County Soil Survey of 1998 and the Soil Survey of Nye County, Northeast Part of 2002. Soils are typically shallow, or less than 20" deep. Many of the soil types may have hardpan or "caliche" layers beneath the soil surface that limit root growth and plant productivity. These types of soils are typical throughout several MLRAs in Nevada. There are also many "salty" saline or alkaline soils within the permit renewal area that are generally restrictive to plant growth and limit the types of native vegetation that grows. Soils vary through the area in soil stability or "soil quality". There are many fine textured silty soils in the allotment associated with salt desert shrub range that have been eroded or are highly susceptible to or at risk of erosion and invasive species spread. There are also gravelly loam soils associated with sagebrush range that are relatively healthy and not that susceptible to erosion. Detailed information on soils such as soil textures, soil depths, root restrictive layers, susceptibility to erosion, and associated vegetation is presented in the soil surveys.

1.2 Summary of Overall Livestock Operations

1.2-1. Duckwater Cattle Company

Current management practices for Duckwater Cattle Company have been implemented since the late 1990s and are summarized as follows:

Duckwater Cattle Company turns out cattle to the Bull Creek Use Area each spring beginning as early as March 15. Cattle are normally turned out in several bunches over a four week period totaling up to 800 head. Cattle obtain water from Bull Creek during this season and distribute grazing to the Bull Creek Area or the Duckwater Hills Area. Cattle are taken to the Bull Creek private ground around mid May where they stay about a week before going to Green Springs Private ground or being turned out to the Green Springs Use Area about May 23. Calves are normally branded at Green Springs private ground in early June. Cattle graze in Green Springs Valley until about June 20. In Green Springs Valley, cattle are watered from a water ditch that flows west from Green Springs private. Watering also occurs at the earth reservoir at the end of the water ditch, or at water haul sites in the northeast portion of the valley. At times over the past several years cattle have also watered at the water well in the east middle portion of the valley.

From Green Springs Valley, cattle are taken to the Forest Service (Treasure Hill Allotment) or the BLM Monte Cristo Allotment where cattle graze from about June 20 through September 19.

In Monte Cristo, cattle graze the crested wheat seeding or native range. Water is provided to both areas from the Monte Cristo Well. In September, cattle come off the Forest to the Monte Cristo Allotment and on to the Green Springs Use Area, or directly to private ground at Green Springs or Bull Creek. Cattle then graze private lands until about November 14. Short term trail permits (2 days or less) over and beyond active use are authorized in fall for movement of cattle from private ground at Green Springs or Bull Creek to the Duckwater Home Ranch.

From November 14 to January 31 cattle are turned out to winter range in the Bull Corner/Poison Patch, Bull Creek/Duckwater Hills, or Pancake East Bench Use Areas. Cattle may return to the Duckwater Home Ranch earlier than January 31, depending on forage availability and weather conditions. During the winter period, cattle water at Bull Creek private ground, along Bull Creek, or at water hauling locations in the Bull Corner Area.

Cattle remain on private ground from February 1 to February 14. From February 15 to March 14, 400 cattle are authorized according to an exchange-of-use agreement to be fed on private unfenced ground and allowed to spread out on drier public lands adjacent to the unfenced private.

In addition to this base operation, Duckwater Cattle Company has worked cooperatively with the BLM over the years to improve livestock grazing. They have voluntarily ran lower than permitted numbers and entered in agreements with the BLM. It is the overall goal of the operator to achieve and maintain a viable, 800 head cattle grazing operation.

1.2-2 Duckwater Shoshone Tribe

The Tribe turns out cattle (cow/calf pairs and dry cows) in April and May to the north or south grazing area. According an agreed upon grazing rotation system, cattle are turned out to the north area in even years and the south area in odd years. Bulls are normally turned out sometime in June. From 8 to 12 different families or brands are turned out. There is also a Tribal brand. Grazing in both the north and south areas occurs in association with agreed upon water hauling locations. Grazing in the south area also occurs near two or three native springs that have been developed (Pancake East Bench Use Area).

Cattle graze the salt desert shrub range or sagebrush range through spring and summer. Some cattle drift occurs across the unfenced use area boundaries. Cattle are brought in in September or October to be worked and/or calves weaned. Prior to about 2000, cattle were released back to native range for some fall/winter grazing. In more recent years, cattle have returned to the reservation as early as June or July. It has been difficult to keep the cattle located on native range. Very little grazing has occurred in October or November. One summer the cattle were brought in for 4 weeks from 5/15 to 6/15. An attempt was made to winter cattle in 2000, however the cattle did not want to stay on the winter range. The Tribe leased about 400 AUMs from RWD Currant Creek, LLC for winter grazing on the Broom Canyon Use Area in 2003/2004. The cattle stayed on the range in this case (this use area is partially fenced).

1.2-3. Paris Livestock

Paris Livestock normally enters the north portion of the Duckwater Allotment (west of easy Junior Mine) from mid January to the first week of February with two large bands of sheep. A smaller band of yearling ewes may enter the allotment from the same location at about the same

time or may enter the allotment from private alfalfa fields near Black Point Mountain. Sheep numbers varied from 2002 to 2008 from a total of 2800 sheep to a total of 4500 sheep. Two large bands of near 2000 sheep each plus one smaller band of from 800 to 1500 sheep may be run. Sheep move through the allotment south through the authorized use areas, depending on forage conditions and snow availability. Water hauling is authorized along main county roads if needed. One or two sheep bands may graze in the Sand Springs Allotment (Tonopah BLM – to the south of Duckwater) for from one to three weeks in late February/early March. This winter the sheep arrived in the Sand Springs Allotment on January 25. Sheep return north through the authorized use areas in March, leaving the allotment in late March as they enter the South Pancake Allotment. Sheep shearing or lambing does not occur in the Duckwater Allotment. From 2001 to 2008 (7 years), Paris Livestock sheep days in the allotment ranged from 44 to 79 days and averaged 58 days. Sheep move roughly a mile a day.

1.2-4. Thomas and Ellen Gardner

Thomas and Ellen Gardner have only owned the sheep grazing permit in the Duckwater Allotment for two years. In early 2008 1325 sheep were brought into the allotment on January 18 and stayed until March 15. The sheep used the Little Smoky Valley, Pogues Station, Bull Corner/Poison Patch, and Pancake East Bench Use Areas. Sheep used snow as their primary water source. About 1425 ewes were brought into the Duckwater Allotment December 10, 2008 and stayed until March 20, 2009. Sheep used primarily the Little Smoky Valley Area this winter. Mr. Gardner has stated that he expects to continue to graze one ewe band in the allotment during his authorized winter period of use. Sheep are expected to continue to use snow as their primary water source during the winter period. Water hauling along the main county roads is allowed in the absence of snow. No shearing or lambing is expected to occur on the Duckwater Allotment.

1.3 Licensed Livestock Use – Summary of Overall Operation

1.3-1. Licensed Use - Duckwater Cattle Company

Monte Cristo Allotment

Over the grazing seasons 2000 to 2008, cattle active permitted use on the Monte Cristo Allotment for cattle was 725 AUMs, with a season of use from 6/21 to 9/18. 400 AUMs are in voluntary non-use. The former active permitted use for the allotment (1999 and previous) was 1,129 AUMs. The 725 AUMs is for use in both the Monte Cristo Seeding and native range. There is no separate adjudication for the fenced Monte Cristo Seeding. The Monte Cristo Allotment was in total non-use for the six year period 2003 to 2008. Licensed use was made in 1999 to 2002 (four years). Further information on licensed use in this allotment is provided in section 11.2.

Duckwater Allotment

Over the grazing seasons 1999 to 2008, cattle active permitted use on the Duckwater Allotment (5 use areas) for cattle was 4,309 AUMs, with an overall season of use of 3/15 to 1/31. In addition, 736 AUMs are authorized under an exchange of use agreement from 2/15 to 3/14. Also, 54 sheep are authorized in the allotment from 6/1 to 11/30 for 66 AUMs.

The following Table 1.3-1 illustrates both licensed and actual use records for Duckwater Cattle Company cattle use in four native use areas of the Duckwater Allotment. Use areas are as follows:

Bull Creek/North Railroad Valley - Duckwater Hills Use Area (1)
Green Springs Use Area (2)
Bull Corner/Poison Patch Use Area (3)
Pancake East Bench/Duckwater Valley Use Area (4)

According to the Stipulation for Dismissal of Appeals of April, 1996 the Bull Creek/North Railroad Valley and Duckwater Hills Use Areas are managed together as one grazing unit for spring and winter grazing. Thus the designation, ***Bull Creek/North Railroad Valley - Duckwater Hills Use Area.***

Duckwater Cattle Company generally licenses their full permit, however their actual use level is lower than this (Table 1.3-1). Over the past few years, the permittee has suffered from health problems and has not been able to keep accurate use records. It is estimated that Duckwater Cattle Company has been running 550 to 600 head of cattle on their permit over the past few years. Prior to this, the permittee has submitted actual use records and has resumed this practice. Detailed actual use records were submitted for some years. For other years, no actual use is available. No estimate has been provided for winter use on the Bull Corner/Poison Patch, Bull Creek/Duckwater Hills, or Pancake East Bench Use Areas.

Table 1.3-1. Licensed & Actual Cattle Use – Duckwater Cattle Company – Duckwater Allotment

Year	Use Area	Cattle Numbers	Season of Use/ Licensed Use AUMs	Cattle Numbers	Season of Use/ Actual Use AUMs
2008	1	800	3/15 – 5/15 1631	280 – 551	3/21 - 5/18 / 963 AUMs
	2	800	5/23 – 6/26 947	528	5/27 - 6/25 / 456 AUMs
	2	335	9/19 – 9/30 0	-	Not reported
	1	330	11/15 – 1/31 846	393	11/24 - 1/4 / 408 AUMs
	3	322	11/15 – 1/31 826	320	11/19 - 11/23 / 323 AUMs
	4	43	11/15 – 1/31 110	-	Not reported/non-use?
			Total non(t) 4360		Total non(t) 2150
2007	1	800	3/15 – 5/15 1631	550-600	1121 - 1223 AUMs*
	2	800	5/23 – 6/20 763		
	2	335	9/19 – 9/30 0		A trail permit for 384 cows was
	2	384	9/14 – 9/15 (t) 25		taken for 9/14 – 9/15 in the Green
	1	550	9/20 – 9/20 (t) 18		Springs area. A trail permit for
	1	330	11/15 – 1/31 846		550 cattle was taken for 9/20 in
	3	322	11/15 – 1/31 826		the Bull Creek Area.
	4	-		Non-use	
			Total non(t) 4066		
2006	1	800	3/15 – 5/8 1447	550-600	1121 - 1223 AUMs
	2	800	5/23 – 6/23 842		
	2	335	9/19 – 9/30 0		A trail permit for 389 cows was
	2	389	9/19 – 9/20 (t) 26		taken for 9/19 – 9/20 in the Green
	1	211	9/21 – 9/21 (t) 7		Springs area. A trail permit for
	1	330	11/15 – 1/31 846		211 cattle was taken for 9/21 in
	3	322	11/15 – 1/31 826		the Bull Creek Area.
	4	-		Non-use	
			Total non(t) 3961		
2005	1	800	3/15 – 5/15 1631	550-600	1121 - 1223 AUMs
	2	800	5/23 – 6/20 763		
	1	200	8/13 – 8/13(t) 7		
	2	335	9/19 – 9/30 132		
	1	330	11/15 – 1/31 846		
	3	322	11/15 – 1/31 826		
	4	43	11/15 – 1/31 110		
			Total non(t) 4308		
2004	1	800	3/15 – 5/15 1631	550-600	1121 - 1223 AUMs
	2	400	5/23 – 6/20 381		
	2	335	9/19 – 9/30 0		
	1	330	11/15 – 1/31 846		
	3	322	11/15 – 1/31 826		
	4	43	11/15 – 1/31 110		
	1	125	2/5 – 2/5 (t) 4		
	1	150	2/6 – 2/6 (t) 5		
			Total non(t) 3794		
2003	1	425	5/1– 5/15 210	425 – 26	5/2 - 5/14 / 159 AUMs
	2	425	5/23 – 6/20 405	425 – 106	6/1 - 6/21 / 255 AUMs
	1	300	7/5 – 7/5(t) 10	-	
	1	75	7/6 – 7/6(t) 2	-	
	1	335	9/19- 9/30 0	Non-use	
	3	322	11/15 – 1/31 826	323 - 25	12/9 - 1/18 / 362 AUMs
			Total non(t) 1438		

2002	1	800	3/15 – 5/15	1631	550-600	1121 - 1223 AUMs
	2	800	5/23 – 6/20	763	Unknown	
	2	200	8/21 – 8/27	46		
	2	200	9/1 – 9/7	46		
	2	222	9/8 – 9/8(t)	7		
	1	444	9/16 – 9/19	58		
	1	330	11/15 – 1/31	846	Unknown	
	3	322	11/15 – 1/31	826	Unknown	
	4	43	11/15 – 1/31	110	Unknown	
			Total non(t)	4326		
2001	1	No record	-		15 - 614	3/20 - 5/17 / 865 AUMs
	2	No record	-		614 – 238	5/24 - 6/22 / 573 AUMs
	1	330	11/15 – 1/31	846	186	11/24 - 1/30 / 422 AUMs
	3	322	11/15 – 1/31	826	322	11/17 - 1/29 / 783 AUMs
	4	43	11/15 – 1/31	110	43	11/25 - 1/31 / 96 AUMs
2000	1	No record	-		23 – 687	3/16 - 5/16 / 842 AUMs
	2				686 – 294	5/23 - 6/23 / 621 AUMs
	3				322 – 128	11/23 - 1/28 / 576 AUMs
	1				203 – 128	11/19 - 1/28 / 576 AUMs
	4				Non-use	
1999	1	No record	-		16 – 747	3/15 - 5/16 / 827 AUMs
	2				743 – 31	5/23 - 6/20 / 631 AUMs
	1				306	12/13 - 2/1 / 572 AUMs
	3				322	11/29 - 2/1 / 572 AUMs
	4				Non-use	Wild horses & other cows took it

* 1121 – 1223 AUMs represents the amount of AUMs that would have been used by from 550 to 600 cattle from 3/15 – 5/15 in the Bull Creek/Duckwater Hills Use Area.

From 1999 through 2008, the full exchange of use grazing authorization (800 cattle from 2/15 – 3/14 for 736 AUMs) was activated and licensed with the following exceptions:

- In 2007, only 498 AUMs were licensed.
- In 2003, 448 additional AUMs were authorized and licensed due to drought.

The sheep portion of this permit for 54 sheep from 6/1 – 11/30 for 65 AUMs was licensed in 2002 and 2003. This portion was not licensed from 2004 to 2008.

1.3-2. Licensed Use – Duckwater Shoshone Tribe

Over the grazing seasons from 2002 to 2008, cattle active permitted use on the Duckwater Allotment was 4,693 AUMs in accordance with the grazing agreement signed July 11, 2001. This agreement summarizes the cattle permit as follows:

ANNUAL GRAZING USE		
LIVESTOCK NUMBER/KIND	PERMITTED USE AUMS	SEASON-OF-USE
383 cattle	201	4/15 – 4/30
858 cattle	874	5/1 – 5/31
729 cattle	2684	6/1 – 9/20
	Rest	9/21 – 11/30
400 cattle	934	11/21 – 01/30
	Total – 4,693	

The agreement also stated: "Grazing use will be authorized in the following areas of use: Pancake East Bench/Duckwater Valley, Duckwater Hills, Pogues Station, North Sand Springs Valley, and Bull Creek Corner/Poison Patch Use Areas. As agreed, the South Sand Springs Valley Use Area will be temporarily closed to livestock grazing because of continued degraded forage conditions and limited forage productivity and availability."

Prior to the agreement signed in July, 2001, cattle active permitted use on the Duckwater Allotment for the Shoshone Tribe was 7,415 AUMs in accordance with the 1995 grazing and wild horse decision. The season of use was variable, by use area, according to the decision.

The Shoshone Tribe licenses use each spring for the allotment as a whole. Actual use by use area is difficult to determine, as cattle move freely between use areas that are for the most part unfenced. Cattle often return to the reservation prior to the grazing off date because of limited feed availability.

Table 1.3-2. Duckwater Allotment Licensed Use by the Duckwater Shoshone Tribe

Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)	Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)
1999	5,032	68%	2004	3,426	73%
2000	4,321	58%	2005	2,986	64%
2001	4,547	61%	2006	3,437	73%
2002	3,776	80%	2007	3,403	73%
2003	3,460	74%	2008	2,030	43%

Average annual licensed use for the period 1999 to 2008 (10 years) comes to 3,642 AUMs. Average annual licensed use for the period 1985 to 1998 (14 years) comes to 5,222 AUMs. Cattle numbers from 1985 to 1998 ranged from 550 head to 1,053 head and averaged 800 head for the 14 year period. Cattle numbers from 1999 to 2008 ranged from 534 head to 840 head and averaged 673 head for the 9 year period.

1.3-3. Licensed Use - Paris Livestock

Over the grazing seasons from 1999 to 2008, livestock permitted use on the Duckwater Allotment (Bull Corner, Pogues Station, North Sand Springs Valley, South Sand Springs Valley, Pancake East Bench, and Little Smokey Valley Use Areas) for Paris Livestock was 1,770 active AUMs of sheep use. During this same time period, livestock licensed use for the allotment as a whole (all use areas) ranged from a high of 1,381 AUMs in 2002 to a low of 592 AUMs in 1999. Livestock use has varied dependent on available forage due to growing conditions, the availability of snow, and the needs of the operator. Paris Livestock submits an after the fact actual use grazing application for use on Duckwater and other allotments. Table 1.3-3 summarizes the licensed use data on the Duckwater Allotment for this time period.

Table 1.3-3. Duckwater Allotment Licensed Use by Paris Livestock

Grazing Year	Actual Use (AUMs)	% Actual Use of Permitted Use (AUMs)	Grazing Year	Actual Use (AUMs)	% Actual Use of Permitted Use (AUMs)
1999	948	54%	2004	949	54%
2000	1134	64%	2005	896	51%
2001	1410	80%	2006	1048	59%
2002	764	43%	2007	1121	63%
2003	1055	60%	2008	700	40%

1.3-4. Licensed Use – Tom and Ellen Gardner

The Tom and Ellen Gardner sheep permit on the Duckwater Allotment is authorized as follows:

Allotment	Livestock Number/Kind	Grazing Period	Active AUMs
Duckwater	2241 Sheep	11/01 - 04/15	2446
	622 Sheep	01/01 - 03/31	368
		Total	2841

The Tom and Ellen Gardner sheep permit was inactive in the Duckwater Allotment from 1995 until 2004 (10 years). In 2005/2006, Dave Woolfolk ran from 1000 to 1800 sheep in the Duckwater Allotment from 11/1/2005 to 2/28/2006 for 1147 AUMs. In 2006/2007, Gary Snow leased this permit from Vince Ferreira. Gary Snow licensed up to 1860 ewes from 12/28/2006 to 02/06/2007 for 598 AUMs.

In 2007, Tom and Ellen Gardner acquired the permit from Vince Ferreira. They licensed 1325 ewes from 1/18/2007 to 3/15/2008 for 497 AUMs.

In 2008, Tom and Ellen Garner licensed for 1425 ewes from 12/10/2008 to 02/28/2009 for 759 AUMs.

1.4 Riparian Data

Introduction: Public land water sources are scarce in the Duckwater Allotment. Waters have declined in the allotment over the past 20 years. For the most part, cattle, sheep, wild horses and wildlife water at sources on private land, on Forest Service land, or at water haul sites. Cow Well and Arambel Well in the north portion of Little Smoky Valley are the only working water wells in all the use areas of the Duckwater Allotment covered by this SDD. The Monte Cristo Well is a working well within the Monte Cristo Allotment. Several water wells that were initiated years ago as cooperative projects between the BLM and grazing permittees are inoperable. These wells just could not be practically or economically maintained. These wells include Government Well (Indian Well) and Pogues Well in the Pogues Station Use Area, and Bull Creek Well No. 2 off the Vanover Road in the Bull Creek/North Railroad Valley Use Area.

Five springs were evaluated in the Duckwater Allotment in August, 2008. These are all cool water spring systems, and are developed water sources. Springs are regionally scarce in the allotment. These springs have become more important to all animals as other temporary water sources have flowed less or have dried up over the years.

Findings: Monitoring data results describing current resource conditions for five cool water spring systems (riparian systems) in the Duckwater Allotment as they relate to the Riparian and Wetland Sites Standard and indicators are as follows:

"Standard Riparian Functioning Condition Checklists" (USDI-BLM 2000) were completed for McClure Spring, Florio Spring, Martiletti Spring, Portuguese Spring, and Florio Well Spring on August 12, 2008. These are all considered lentic sources (springs or seeps) as opposed to lotic sources (streams or flowing waters). McClure, Florio, and Portuguese Springs can be classified as "fault" or "fracture" springs. Martiletti and Florio Well Spring can be classified as "depression" springs (Fetter, 2001). The riparian assessment team consisted of the range specialist, the wildlife biologist, and the wild horse specialist.

McClure Spring - Pancake East Bench Use Area, Duckwater Allotment

Date of survey	08/12/2008
Location of survey	McClure Spring - T. 12N., R. 55E., Sec. 9, NE 1/4 of NE 1/4.
Final riparian rating	Functional at risk with trend not apparent to downward.

Survey remarks: Area about ½ acre of hydric soils. Flow approximately 3 gallons per minute. Development is restricting riparian habitat. Vegetative cover on banks not adequate to protect soil surface & dissipate energy during overland flows. The surface flow patterns are altered by disturbance (road, hoof action, rills). A little stream flows down a channel for about 50 yards. Heavy wild horse use was evident on riparian vegetation & a hydric soil near the spring source. The water development that includes a 20' diameter round steel trough was not working properly and a small pool of water was on the ground near the trough.

Florio Spring - Pancake East Bench Use Area, Duckwater Allotment

Date of survey	08/12/2008
Location of survey	Florio Spring - T. 13N., R. 55E., Sec.9, SE 1/4 of NW 1/4.
Final riparian rating	Functional at risk with trend downward.

Survey remarks This is a developed spring almost non-functioning because it is almost dry. With normal years, the area of hydric soils would be larger. The riparian/wetland area is not saturated in "relatively frequent" events. Several vegetation attributes including vegetation cover were rated "No". Surface flows are altered by disturbance (development). Sedge & rush at the area were used about 80% by wild horses. Antelope & chukar partridge have been using the area.

Florio Well Spring - Pancake East Bench Use Area, Duckwater Allotment

Date of survey	08/12/2008
Location of survey	Florio Well Spring - T. 13N., R. 55E., Sec.9, SE 1/4 of SW 1/4.
Final riparian rating	Functional at risk to non-functional with a downward trend.

Survey remarks This is a developed water source piping water 25 yards to a powder river trough. One powder river trough was half full of water. A very small area less than 1/10 acre is not being saturated in "relatively frequent" events, and the water source has been altered by digging for a head box. The small riparian area is shrinking & the uplands are encroaching. Sveral vegetation attributes are rated "No" on the lentic standard checklist.

Martiletti Spring – South Sand Springs Valley Use Area

Date of survey	08/12/2008
Location of survey	Martiletti Spring - T. 11N., R. 55E., Sec. 17, SW 1/4.
Final riparian rating	Non-functional with a downward trend.

Survey remarks Hydrology attributes, vegetation attributes, and erosion/deposition attributes were almost all rated "no" for this spring, which should have about ½ acre of hydric soils. There is extreme wild horse degradation present, with eroded soils. Zero riparian vegetation cover. Serious muck in a 8' diameter pool downgradient from the dug out spring source. This spring receives wild horse use, antelope use, and minimal other wildlife use. An old exclosure protected it many many years ago. Remnants of this remain.

Portuguese Spring - South Sand Springs Valley Use Area

Date of survey	08/12/2008
Location of survey	Portuguese Spring - T. 11N., R. 55E., Sec. 17, SW 1/4.
Final riparian rating	Not rated

Survey remarks This is a developed spring that is currently dry. No surface water & no water in the powder river trough. The head box had no water in it. Drought affected. Less than 1/10 acre of riparian sedge & rush is used 85% to 90% by wild horses. The old exclosure that once protected the area is completely down. If rated the small water source would rate non-functional.

Several water sources that have been monitored in the past in the Duckwater Allotment were not monitored in association with this SDD. These sources have not been prioritized for monitoring because they have either dried up, are inaccessible or not reasonably accessible, or are used only by wild horses and/or wildlife. These include:

1. Willow Creek – Little Smoky Valley Use Area. This lotic source that once occurred on a few yards of public land east of the Willow Creek Ranch has been dry for many years due to drought combined with field work on the private ground of the Willow Creek Ranch.

2. Tank Spring - Little Smoky Valley Use Area. This lentic water source of less than 1/10 acre occurs in the Park Range Wilderness. Access is by foot only for the last mile. This source is used by wild horses and wildlife. Heavy wild horse use was observed in 1992. Light wild horse use in 1994. The Off-Bank Stream Riparian Worksheet rated this source as low fair in 1992 and 1994. It has been observed that the source "needs protection".

3. Mahogany Spring – North Sand Springs Valley Use Area. This developed lentic source (small mining adit + 12X4X4 ft. deep cement catchment) is only used by wild horses, deer, and other wildlife. There is less than 1/10 acre of hydric soil and riparian vegetation present. Access is 8 miles in on a hazardous two track road. The Off-Bank Stream Riparian Worksheet rated this source as good or excellent in each year from 1991 to 1994.

4. Sand Springs (sometimes called Moody Spring) – North Sand Springs Valley Use Area. This developed lentic source with a functioning protection fence around less than 1/20 acre of riparian vegetation and headboxes is used almost exclusively by wild horses and wildlife. Access is difficult on an old two track road. The old water pipeline that used to transfer water two miles southwest into the valley has not been maintained for many many years.

5. Nevada Governor's Spring – Bull Creek Corner/Poison Patch Use Area. This once "dug out" and fence protected lentic developed spring has flowed very little water in the past several years. No riparian vegetation or hydric soils are present at this area now.

6. Soda Spring – Bull Creek Corner/Poison Patch Use Area. This is also a remote developed water source of less than 1/10 acre with no riparian vegetation and no hydric soil remaining. This water source was redeveloped and maintained in 2000 as a cooperative project between BLM, the National Mustang Association, and the Duckwater Shoshone Tribe.

THE FOLLOWING SECTIONS ARE A RANGELAND MONITORING DATA SUMMARY BY USE AREA FOR NINE USE AREAS WITHIN THE DUCKWATER ALLOTMENT. THESE AREAS ARE LISTED ALPHABETICALLY AS FOLLOWS:

1. BULL CREEK/NORTH RAILROAD VALLEY USE AREA
2. BULL CORNER/POISON PATCH USE AREA
3. DUCKWATER HILLS USE AREA
4. GREEN SPRINGS USE AREA
5. LITTLE SMOKY VALLEY USE AREA
6. NORTH SAND SPRINGS VALLEY USE AREA
7. PANCAKE EAST BENCH/DUCKWATER VALLEY USE AREA
8. POGUES STATION USE AREA
9. SOUTH SAND SPRINGS VALLEY USE AREA

1. DUCKWATER ALLOTMENT, BULL CREEK/NORTH RAILROAD VALLEY USE AREA

1.1 Key Areas and Rangeland Ecological Sites

A key area is a relatively small portion of a pasture or allotment selected because of its location, use, or grazing value as a monitoring point for grazing use. It is assumed that key areas, if

properly selected, will reflect the current grazing management over the pasture or allotment as a whole (NRCS 1997). Key areas represent range conditions, trends, seasonal degrees of use, patterns of use, and resource production and values. Table 1.1-1 depicts key areas and their location within the Duckwater Allotment, Bull Creek/North Railroad Valley Use Area as well as the ecological site associated with the key area and soil associations of the Soil Mapping Unit (SMU) where the key area is located.

A rangeland ecological site is distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (NRCS 1997). Ecological Site Descriptions (ESD) are used for inventory, evaluation, and management of native vegetation communities. The ecological site of a key area is determined based on several factors including soils, topography, and plant community.

Table 1.1-1 Duckwater Allotment, Bull Creek/North Railroad Valley Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-02	T13N R57E S19 SE1/4 NE1/4	Loamy 5-8" P.Z. (029XY017NV)	shadscale, bud sagebrush, and Indian ricegrass	3644—Armespan-Cliffdown-Candelaria association (NV783)
DW-24	T13N R57E S7 NW1/4 SW1/4	Silty 8-10" P.Z. (028BY013NV)	winterfat and Indian ricegrass	3972—Linoyer very fine sandy loam (NV783)
DW-29	T12N R57E S8 SW1/4 NW1/4	Coarse Silty 5-8" P.Z. (029XY042NV)	winterfat and Indian ricegrass	3644—Armespan-Cliffdown-Candelaria association (NV783)
DW-31	T11N R57E S4 SW1/4 SW1/4	Coarse Silty 5-8" P.Z. (029XY042NV)	winterfat and Indian ricegrass	3644—Armespan-Cliffdown-Candelaria association (NV783)
DW-33B	T14N R57E S31 SE1/4 SE1/4	Coarse Silty 6-8" P.Z. (028BY084NV)	winterfat and Indian ricegrass	1821—Sodhouse-Palinor association (NV780)
DW-34	T11N R57E S5 NW1/4 NW1/4	Coarse Silty 5-8" P.Z. (029XY042NV)	winterfat and Indian ricegrass	3644—Armespan-Cliffdown-Candelaria association (NV783)

* HCPC = Historic climax plant community

* Key Areas DW-30, DW-32, DW-33, DW-35, and DW-36 also occur in the Bull Creek Use Area. Observed apparent trend studies have been read at four of these additional five areas - DW-30, 32, 34, and 35 (see Section 2.8). Otherwise, these key areas have been studied primarily for utilization through the years.

** DW-02 occurs on the alluvial fan about 0.8 miles east of private ground near Black Point. It is west of Blackrock Spring a few miles.

DW-24 occurs in Freeland Canyon about 1 mile northeast of a small reservoir off the county road.

DW-29 occurs on the alluvial fan about 2 miles northeast on the Vanover Road.

DW-31 is the most south key area in the Bull Creek Use Area. It occurs on an old seismograph track on the alluvial fan south of Broom Canyon.

DW-33B occurs on the alluvial fan between Lampson & Freeland Canyons.

DW-34 occurs in a winterfat area on the fan about 2 miles south of Bull Creek reservoir.

1.2 Licensed Livestock Use

Over the grazing seasons from 1999 to 2008, livestock permitted use on the Duckwater Allotment, Bull Creek/North Railroad Valley Use Area for Duckwater Cattle Co. was 2,477 AUMs of cattle use. (1631 AUMs from 3/15 to 5/15 (spring) and 846 AUMs from 11/15 to 1/31 (fall/winter). During this same time period, livestock licensed use ranged from a high of 2,592 AUMs in 2001 to a low of 1,056 AUMs in 2003. The Bull Creek/North Railroad Valley and Duckwater Hills Use Areas are grazed together as one grazing unit. Livestock use has varied dependent on available forage due to growing conditions, wild horse use, and the needs of the operator. Table 1.2-1 summarizes the licensed use data for this time period. Actual grazing use is summarized in the table on page 85.

Table 1.2-1. Duckwater Allotment, Bull Creek/North Railroad Valley - Duckwater Hills Use Area Licensed Use by Duckwater Cattle Co.

Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)	Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)
1999	2477	100%	2004	1631	66%
2000	2369	96%	2005	2477	100%
2001	2592	105%	2006	2293	93%
2002	2535	102%	2007	2477	100%
2003	1056	43%	2008	2477	100%

1.3 Utilization

Utilization is the estimation of the proportion of annual production consumed or destroyed by animals (Swanson 2006). The general utilization objective for all allotments in the Ely BLM District according to the Ely District Record of Decision and Approved Resource Management Plan (ROD/RMP – August, 2008) is to "Manage livestock grazing on public lands to provide for a level of livestock grazing consistent with multiple use, sustained yield, and watershed function and health" (Ely RMP, p. 85). The Nevada Rangeland Monitoring Handbook gives guidelines to determine the proper use levels by plant category (grasses, forbs, and shrubs) and by grazing season (spring, summer, fall, winter, yearlong). Proper use levels for all allotments are also implied by the Standards and Guidelines for Rangeland Health and Grazing Administration (February 1997).

Key forage plant method (KFPM) utilization was used to collect utilization data at the key areas on the Duckwater Allotment, Bull Creek/North Railroad Valley Use Area. Utilization for the allotment is summarized in Table 1.3-1. Use was recorded for all herbivores (Cattle, wild horse, antelope, rabbit).

Utilization indicated by 2008(Y) was read on March 27 for the 2007 grazing year ending February 28, 2008. Utilization indicated by 2005(Y) was read on March 8 2005 for the 2004 grazing year ending February 28, 2004. Utilization read on March 11, 2003 was for yearlong use up to 2/28/03 for the 2002 grazing year. Utilization indicated by 2000(Y) was read on March 8, 2001 for yearlong use for the 2000 grazing year. Utilization indicated by 1999(Y) was read on March 23 and April 3, 2000 for the 1999 grazing year.

Utilization transects read on June 12, 2002 are for spring/early summer use up to date.
Utilization transects read on August 7, 2001 are for spring/summer use to date.

Table 1.3-1.Duckwater Allotment, Bull Creek/North Railroad Valley Use Area Utilization

Key Area	Key Species	Grazing Year	Utilization	Total
DW-02	winterfat	1999(Y)	moderate	56%
		2000(Y)	moderate	56%
		8/7/2001	light	36%
		March 2003	light	39%
		2008(Y)	light	38%
	Indian ricegrass	1999(Y)	moderate	58%
		2000(Y)	heavy	74%
		8/7/2001	moderate	50%
		March 2003	light	37%
		2008(Y)	heavy	66%
DW-24	Indian ricegrass	1999(Y)	heavy	78%
	winterfat	1999(Y)	moderate	48%
		2000(Y)	light	29%
		8/7/2001	moderate	44%
		March 2003	moderate	50%
		2008(Y)	light	38%
DW-24B	winterfat	1999(Y)	moderate	46%
DW-24C	Indian ricegrass	1999(Y)	heavy	80%
	winterfat	1999(Y)	light	28%
DW-29	winterfat	1999(Y)	light	38%
		2000(Y)	moderate	46%
		March 2003	moderate	42%
		2008(Y)	slight	4%
	Indian ricegrass	1999(Y)	heavy	66%
		2008(Y)	slight	11%
DW-30	winterfat	1999(Y)	moderate	48%
		2000(Y)	moderate	54%
		8/7/2001	moderate	44%
		March 2003	light	40%
		2008(Y)	light	30%
DW-31	winterfat	2008(Y)	slight	3%
		2005(Y)	light	29%
		March 2003	moderate	44%
		2000(Y)	light	23%
	Indian ricegrass	2008(Y)	slight	9%
		2005(Y)	heavy	78%
		March 2003	heavy	62%
		2000(Y)	heavy	80%

Table 1.3-1.Duckwater Allotment, Bull Creek/North Railroad Valley Use Area Utilization

Key Area	Key Species	Grazing Year	Utilization	Total
DW-32	winterfat	2008(Y)	moderate	52%
		March 2003	moderate	51%
		2000(Y)	moderate	58%
		1999(Y)	moderate	58%
	Indian ricegrass	2008(Y)	light	32%
		March 2003	moderate	60%
		2000(Y)	severe	88%
		1999(Y)	heavy	64%
DW-33	sand dropseed	2008(Y)	light	21%
	winterfat	March 2003	moderate	48%
	Indian ricegrass	March 2003	severe	84%
		2008(Y)	light	36%
DW-33B	winterfat	1999(Y)	moderate	46%
		2000(Y)	moderate	52%
		2008(Y)	moderate	48%
	Indian ricegrass	1999(Y)	heavy	66%
		2000(Y)	heavy	72%
		2008(Y)	moderate	45%
DW-34	winterfat	2008(Y)	slight	18%
		2005(Y)	light	32%
		2000(Y)	slight	17%
		1999(Y)	slight	20%
DW-35	winterfat	2008(Y)	moderate	52%
		2005(Y)	moderate	52%
		March 2003	moderate	36%
		2000(Y)	moderate	58%
		1999(Y)	moderate	56%
	Indian ricegrass	2008(Y)	moderate	54%
		2005(Y)	heavy	78%
		March 2003	moderate	42%
		2000(Y)	severe	84%
		1999(Y)	moderate	56%
DW-36	winterfat	2000(Y)	light	40%
		March 2003	moderate	42%
		1999(Y)	moderate	46%

Table 1.3-1.Duckwater Allotment, Bull Creek/North Railroad Valley Use Area Utilization

Key Area	Key Species	Grazing Year	Utilization	Total
south of main Bull Creek Fork	Indian ricegrass	8/7/2001	heavy	64%
	winterfat	8/7/2001	moderate	54%
winterfat bottom near Bull Creek	Indian ricegrass	8/7/2001	heavy	68%
	winterfat	8/7/2001	light	38%
north of Bull Creek Reservoir	needleandthread	2000(Y)	heavy	78%
northeast of Bull Creek Reservoir	winterfat	2000(Y)	heavy	74%
	needleandthread	1999(Y)	severe	82%
north of Bull Creek Reservoir #2	Indian ricegrass	2000(Y)	heavy	72%
2 miles north of Bull Creek Reservoir #3	Indian ricegrass	2000(Y)	severe	84%
	winterfat	2000(Y)	heavy	66%
0.7 miles east of DW-02	Indian ricegrass	2000(Y)	moderate	60%
	winterfat	2000(Y)	moderate	52%
1 mile east of Bull Creek Reservoir	winterfat	1999(Y)	moderate	42%
KA east of Black Point and county rd 0.8 miles (DW-02)	winterfat	6/12/2002	light	22%
	Indian ricegrass	6/12/2002	slight	20%
KA on Vanover Spring rd (DW-29)	winterfat	6/12/2002	light	36%
		4/13/2006Y	slight	10%
	Indian ricegrass	6/12/2002	light	30%

Additional information on key species utilization is presented below under the Observed Apparent Trend section (1.8).

1.3-2 Professional Observations

In March 2003 the following observations were noted at key areas:

At DW-32 halogeton was abundant & cheatgrass was present. Rabbitbrush was very prevalent on the range. Ricegrass was in very poor vigor with dead centers & fringe of small leaves. The 2002 growth of winterfat inside the use cage was of good vigor to 9" tall.

At DW-30 (Lampson Canyon) halogeton was abundant in the area growing with winterfat. Winterfat plants were pedestalled. Cattle + wild horses use.

At DW-33 (Bull Creek bench between Lampson & Freeland Canyon) ricegrass in the use cage was of good vigor with 2 years rest & producing seed. Winterfat inside the use cage was of good vigor to 10" tall with 2 years rest. Green leaves to 3". Many ricegrass plants were extreme drought stressed & poor vigor (dead centers). Halogeton was abundant & cheatgrass common.

At DW-24 (Freeland Canyon) winterfat in the use cage was of good vigor with 2 years rest to 13" tall. Halogeton was abundant & cheatgrass present.

At DW-02 (East of Black Point) lots of rabbitbrush was in the range. Gain, winterfat & ricegrass inside the use cage were of good vigor with 2 years rest. Ricegrass was observed to be producing less than 0.5% of the current annual growth of the plant community.
At DW-29 (Vanover Road) cheatgrass was abundant in the area. Could not find 10 ricegrass plants. Ricegrass was drought stressed & of poor vigor.

At DW-36 (Bull Creek Well #2) cheatgrass was abundant & halogeton was common.

At DW-35 (salt desert shrub south of Bull Creek reservoir) winterfat in the use cage was of fair vigor to 10" tall. Cattle + wild horse use.

AT DW-31 (near Broom Canyon Fence) again winterfat & ricegrass inside the use cage were of fair vigor with 2 years rest. Ricegrass was drought stressed & of poor vigor with dead centers. Very dry range conditions were noted.

1.4 Line Intercept Cover Studies

Vegetation cover data was gathered at six key areas in this use area in June 2008. This cover study measures the foliar (canopy) cover of shrubs and forbs and the basal crown cover of native grasses. Vegetation cover is a linear measure, expressed in feet, along a 100 foot tapeline. A linear measurement of plant litter is also normally made. Observations are recorded on the cover study form regarding the presence or absence of biological surfaces, whether or not the soils are compacted or trampled by animals, and whether cheatgrass is present. Photographs were taken for most, if not all, of the cover studies.

Vegetation canopy cover is the percent of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage, including small openings (Swanson 2006). The Line Intercept Method is a commonly used method of determining the relative percent live foliar or canopy cover of a range site by plant class (tree, shrub, grass, forb, or annual). The method also estimates the percent live foliar cover by plant species. The results are then compared to the appropriate cover for each ecological site as indicated by the Natural Resources Conservation Service (NRCS) Rangeland Ecological Site Descriptions. Results are also compared to general known healthy rangelands. The results are presented in Table 1.4-1:

Table 1.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – Bull Creek/North Railroad Valley Use Area

Key Area/ Date	UTM Location	Ecological Site	Vegetation * Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration.
DW-24/ 6/4/2008	N: 4317834 E: 620189	28BY013NV Silty 8-10”	10.79 feet/ 1.59 feet Potential 10-20 ft	No biological crusts present.	Moderate use.
DW-02/ 6/4/2008	N: 4314691 E: 621085	29XY017NV Loamy 5-8”	6.46 feet/ 3.37 feet Potential 15-25 ft	Small amount of biotic crust under shrubs.	
DW-31/ 6/10/2008	N: 4299666 E: 623687	29XY042NV Coarse silty 5-8”	9.93 feet/ 8.31 feet Potential 15-30 ft	Black biotic crusts under edges of shrub canopies.	Loose soil not compacted or trampled.
DW-29/ 6/10/08	N: 4308513 E: 622138	29XY042NV Coarse silty 5-8”	6.40 feet/ 28.79 feet Potential 15-30 ft	Not many cryptogamic crusts.	Loose soil not compacted or trampled.
DW-33B/ 6/4/2008	N: 4320420 E: 621644	28BY084NV Coarse silty 6-8”	4.45 feet/ 10.56 feet Potential 10-20 ft	Occasional black biotic crusts between shrubs.	Soil not trampled or compacted.
DW-34/ 6/10/08	N: 4300794 E: 622318	29XY042NV Coarse silty 5-8”	10.95 feet/ 4.34 feet Potential 15-30 ft	Did not see any biotic crusts.	Soil very loose; not compacted or trampled.

* Linear measurements are expressed in feet along a 100 foot tapeline. The potential listed in this column is the potential approximate ground cover (basal and crown) for the ecological site. In other words, the 10.79 feet vegetation cover at Key Area DW-24 is within the approximate ground cover range for the silty 8-10” ecological site of 10 – 20 %, or 10 – 20 feet.

1.4-2. Composition by Cover

Species composition by cover at Key Areas DW-24, DW-02, DW-31, DW-29, DW-33B, and DW-34 is as follows:

DW-24	***DW-02***	***DW-31***
Winterfat 100% Shrubs 100%	Winterfat 33% Rabbitbrush 56% Sickle saltbush 6% Eriogonum 4% Ricegrass 1% Halogeton 1% Shrubs 95%	Winterfat 36% Bud sagebrush 58% Shadscale 2% Galleta grass 1% Indian ricegrass 2% Squirreltail 1% Mustard Trace Shrubs 96%
DW-29	***DW-33B***	***DW-34***
Fourwing 63% Cheatgrass 11% Russian thistle 9% Winterfat 8% Bud sagebrush 1% Ricegrass 6% Globemallow 2% Shrubs 90% of native Invasives 20% of all cover	Winterfat 41% Rabbitbrush 43% Bud sagebrush 5% Black sagebrush 2% Spiny hopsage T Ricegrass 2% Squirreltail 3% Halogeton 4% Shrubs 95% of native Invasives 4% of all cover	Winterfat 100% Shrubs 100%

1.5 Ecological Condition Information Including Similarity Index

A similarity index is the percentage of a specific vegetation state plant community that is presently on the site (NRCS 1997). Similarity index is usually computed in reference to the historic climax plant community (HCPC) and is an expression of how similar the existing plant community is to HCPC. HCPC is also referred to as ecological site potential.

When the similarity index is computed, a seral stage can be derived. Seral stages are the developmental stages of an ecological succession (NRCS 1997). A similarity index of 0 to 25 percent represents an early seral plant community, 26 to 50 percent represents a mid-seral plant community, 51 to 75 percent represents a late seral plant community, and 76 to 100 percent represents a climax plant community.

Similarity index is calculated as a percent composition by air dry weight. The site is inventoried to determine the current percent composition by weight on an air dry basis. These numbers are then compared to the percent composition by weight on an air dry basis of the HCPC in the Rangeland Ecological Site Description for the site. To calculate the similarity index, current composition cannot exceed that of HCPC. This yields percent allowable. The sum of all allowable percentages equals the similarity index.

Tables 1.5-1 through 1.5-4 summarize ecological condition data gathered for the Duckwater Allotment, Bull Creek Use Area.

Table 1.5-1.Total Annual Yield and Composition of Duckwater Allotment, Bull Creek Use Area Key Areas

Key Area: DW-02
Date: 06/04/2008
Range Site: Loamy 5-8" P.Z. (029XY017NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	1%	25-45%	1%
Squirreltail	ELEL5	1%	2-5%	1%
Eriogonum	ERIOG	1%	2%	1%
winterfat	KRLA2	3%	5-10%	3%
Douglas' rabbitbrush	CHVI8	85%	3%	3%
bud sagebrush	PIDE4	3%	5-15%	3%
Sickle saltbush	ATFA	7%	3%	3%

Similarity Index: 15% (early seral stage) Apparent trend was recorded as declining.
Overall Production: 192 pounds per acre (air dry wt.). Normal year plant production is about 450 pounds per acre. Unfavorable year production is about 200 pounds per acre. Halogeton produced about 12 pounds per acre, or 6% of current annual growth.
Potential vegetative composition: about 45% grasses, 5% forbs, and 50% shrubs.
Current composition: 2% grasses, 1% forbs, and 98% shrubs.
Plant Community Dynamics: Where management results in abusive grazing use by cattle and/or feral horses, shadscale, Douglas' rabbitbrush, horsebrush, sand dropseed, and galleta increase, while Indian ricegrass, winterfat and bud sagebrush decrease. Following wildfire snakeweed and Douglas' rabbitbrush greatly increase and may dominate the site for a protracted period. Species likely to invade this site are halogeton, Russian thistle, cheatgrass and annual mustards.
*from Ecological Site Description

In 1992, DW-02 was found to producing about 153 pounds per acre with a similarity index of 28% (mid seral). Rabbitbrush was producing about 44% of the current growth. A declining range trend was noted. Indian ricegrass was already used 70% on July 22, 1991.

In 1991, DW-02 was found to be producing about 170 pounds per acre with a similarity index of 23% (early seral). Rabbitbrush was producing about 29% of the current growth. A declining range trend was noted.

Table 1.5-2.Total Annual Yield and Composition of Duckwater Allotment, Bull Creek Use Area Key Areas

Key Area: DW-24
Date: 06/12/2008
Range Site: Silty 8-10" P.Z. (028BY013NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
winterfat	KRLA2	99%	40-50%	50%
fourwing saltbrush	ATCA2	1%	2-5%	1%

Similarity Index: 51% (late seral stage based on production, mid seral stage based on unfavorable plant composition). Apparent trend was recorded as declining.
Overall Production: 318 pounds per acre (air dry wt.) Normal year production is about 500 pounds per acre. Unfavorable year production is about 350 pounds per acre. The community was observed to be in a declining range trend.
Potential vegetative composition: about 30% grasses, 5% forbs, and 65% shrubs
Current composition: 0% grasses, 0% forbs, and 100% shrubs
Plant Community Dynamics: As ecological condition declines, bottlebrush squirreltail and shadscale increase as winterfat and Indian ricegrass decrease. With further site deterioration, cheatgrass, halogeton and annual mustards invade the interspace areas between shrub species. On heavily disturbed sites, these annual species, particularly halogeton, become dominant. Soils of this site are easily eroded and gullies often form, interrupting the overland flow patterns. As gullies begin to form, this site grades into the Silty Plain (028BY054NV) or Loamy Fan 8-12" PZ (028BY045NV) site.
*from Ecological Site Description

Table 1.5-3.Total Annual Yield and Composition of Duckwater Allotment, Bull Creek Use Area Key Areas

Key Area: DW-29
Date: 06/10/2008
Range Site: Coarse Silty 5-8" P.Z. (029XY042NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	16%	40-50%	16%
bottlebrush squirreltail	ELEL5	1%	2-5%	1%
globemallow	SPHAE	2%	2%	2%
other annual forbs	AAFF	1%	T-5%	1%
winterfat	KRLA2	21%	25-35%	21%
fourwing saltbrush	ATCA2	56%	2-8%	8%

Similarity Index: 49% (mid seral stage) Apparent trend was recorded as declining.
Overall Production: 151 pounds per acre (air dry wt.) Normal year production is about 450 pounds per acre. Unfavorable year production is about 300 pounds per acre.
Potential vegetative composition: about 55% grasses, 5% forbs, and 40% shrubs
Current composition: 17% grasses, 3% forbs, and 77% shrubs
Plant Community Dynamics: Where management results in abusive livestock use by cattle and /or feral horses, winterfat, fourwing saltbush, and Indian ricegrass decrease. With further site degradation, halogeton, Russian thistle and annual mustards invade the interspace areas between shrubs. These annual species, particularly halogeton, can become dominant on disturbed sites. The soils of this site are susceptible to wind erosion.
*from Ecological Site Description

Table 1.5-4.Total Annual Yield and Composition of Duckwater Allotment, Bull Creek Use Area Key Areas

Key Area: DW-31
Date: 06/10/2008
Range Site: Coarse Silty 5-8" P.Z. (029XY042NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Galleta grass	PLJA	3%	2-8%	3%
bud sagebrush	PIDE4	59%	5-15%	15%
winterfat	KRLA2	31%	25-35%	31%
shadscale	ATCO	7%	5%	5%

Similarity Index: 54% (late seral stage based on production, mid seral stage based on unfavorable plant composition). Apparent trend was recorded as declining.
Overall Production: 232 pounds per acre (air dry wt.) Normal year production is about 450 pounds per acre. Unfavorable year production is about 300 pounds per acre. The area was observed to be in a downward trend.
Potential vegetative composition: about 55% grasses, 5% forbs, and 40% shrubs.
Current composition: 3% grasses, 0% forbs, and 97% shrubs.
Plant Community Dynamics: Where management results in abusive livestock use by cattle and /or feral horses, winterfat, fourwing saltbush, and Indian ricegrass decrease. With further site degradation, halogeton, Russian thistle and annual mustards invade the interspace areas between shrubs. These annual species, particularly halogeton, can become dominant on disturbed sites. The soils of this site are susceptible to wind erosion.
*from Ecological Site Description

1.6 Frequency Trend

A frequency trend study has been established at Key Area DW-02 in the Bull Creek/North Railroad Valley Use Area of the Duckwater Allotment. Frequency trend studies involve measuring the frequency of occurrence of plant species that occur in a rectangular sampling area. A sampling frame divided into 3", 10", 20," or 30" square plots is placed at 200 sampling locations within the overall rectangular area. The presence of plant species is recorded as a dot tally on a standardized form.

Table 1.6-1. Frequency Trend Data - Bull Creek/North Railroad Valley Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-02	1991/2008	More Indian ricegrass	Static
		Less globemallow	
		More halogeton	
		Less winterfat	
		More shadscale	
		More bud sagebrush	

1.7 Drought Indicator Checklist

Drought Indicator Checklists were completed in the Bull Creek Use Area in March 2000, August 2000, June 2002, and March 2003.

In August 2000 at DW-24 (Freeland Canyon - winterfat dominant salt desert shrub), forage vigor and shrub leader growth was average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was below normal, & water source availability was normal. Current year's use to date of winterfat was 40% while that of ricegrass was 64%. Four wing saltbush was observed to be in good shape in the area.

In August 2000 at DW-35 (south of Bull Cree Reservoir – salt desert shrub) forage vigor and shrub leader growth were average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was

below normal & water source availability was normal. Current year's use to date of ricegrass was 39% while that of winterfat was 19%.

In June 2002, at DW-02 (salt desert shrub east of "Black Point"), forage vigor was average for winterfat & poor for ricegrass. Shrub leader growth was average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was below normal & water source availability was below normal. Current year's use to date of winterfat was 36% while that of ricegrass was 30%. Cheatgrass was observed to be dominant over thousands of acres near old Bull Well #2. Rabbitbrush also dominated much of the salt desert shrub range.

In June 2002, at DW-29 (salt desert shrub on Vanover Road), forage vigor was below average to average while shrub leader growth was average. The physical condition of wild horses, wildlife,and livestock was normal. Rainfall for the year was below normal & water source availability was normal. Current year's use to date of winterfat was 22% while that of ricegrass was 20%. Use was by wild horses & cattle. Ricegrass looked to be used severely last grazing year. Poor vigor this year. Cheatgrass was observed to be very abundant on the bench this year. 20 wild horses were observed near Sawmill Spring.

In March 2003 drought checks were completed at eight key areas in the Bull Creek Use Area. A team consisting of the wildlife biologist, wild horses specialist, and range specialist conducted the checks. A detailed rangeland memorandum summarizing the tour was written and placed in the allotment file. Key forage plant method utilization associated with these checks is presented in the utilization section (2.3). The results are presented in the following table:

Indicator	**DW32**	**DW30**	**DW33**	**DW24**	**DW02**	**DW29**	**DW35**	**DW31**
Forage vigor	BAto A	BAtoA	BAtoA	A	BA	BA	BA	BA
Shrub leader growth	BAtoA	BA	BA	A	BA	BA	BA	BA
Leaves of deciduous shrubs lost or dead	BA	BA	A	BA	BA	BA	BA	BA
Physical condition of wild horses, wildlife, livestock	N	N	N	N	N	N	N	N
Soil moisture depth	2 to10"	2 to 6"	2 to 4"	2 to 4" Dry/silty/ powdery	2 to 6" Dry/silty/ powdery	2 to 5" Dry/ powdery	2 to 8"	2-8" Damp/well Drained Sandy soil
Current year Rainfall	BN	BN	BN	BN	BN	BN	BN	BN
Water source availability	N	N	N	N	N	N	N	N

A = average. BA = below average. BA to A = below average to average.
N = normal. BN = below normal.

In general at the above areas, a little winterfat carryover forage was available while very little to no Indian ricegrass carryover forage was available.

The team drought assessment recommendation for the Bull Creek Area was to rest the range completely from cattle grazing until June 1 or seed ripe and continue monitoring.

1.8 Observed Apparent Trend

The observed apparent trend study is used to rate five indicators of rangeland health - plant vigor, plant seedling establishment, surface litter, plant pedestalling, and soil gullies. This study was used by the Ely District BLM primarily during the 1990s and early 2000s, however the results are still useful to date. A numerical rating is obtained, as follows:

26 -35 = Upward trend 17 -25 = Static trend 7 – 16 = Downward trend

Key Area DW-02 (West of Blackrock Spring)

Observed apparent trend was read at DW-02 in 1994, 1995, 1997, and 2000. Each study resulted in a rating of downward trend. In August 1994, halogeton & Russian thistle were very abundant & dominated the range. Shrubs were very droughty. Little bunchgrass was present. Cool season native bunchgrasses were small and overutilized. Wind & water erosion were noted.

In August 1995, no professional observations were noted. In March 1997, Cured residual feed was non-existent on Indian ricegrass in the area. Ricegrass was small & infrequent. Moderate plant pedestalling was indicated. Some wind or water erosion. Dying shrubs were present. Undesirable species skeletons were abundant.

In July 2000, Halogeton, Russian thistle, and cheatgrass were common in the area. Pedestalling of plants on the fine textured soil was common. Soils were observed to be unstable, and an abundance of rabbitbrush was noted.

Key Area DW-24 (Freeland Canyon)

Observed apparent trend was read at DW-24 in 1995, 1996,1997,1998, and 2000. Each study resulted in a rating of downward trend. In July 1995, there was no available perennial grass present. A super abundance of halogeton & mustard was present. Plant pedestalling was somewhat bad. Halogeton & Russian thistle were very abundant. Winterfat was of good vigor, relatively unused.

In June 1996, cured halogeton & mustard were again present. Plant pedestalling of winterfat was widespread. Winterfat was observed to be not producing many green leaves.

In March 1997 the only observation was that the area was in a pronounced downward trend. In March 1998 it was noted that the range in the east portions of Freeland Canyon were totally deteriorated to halogeton. Abundant cow sign and wild horse sign were noted in the area.

In July 2000 there were no professional observations on the form.

Key Area DW-29 (Vanover Road)

Observed apparent trend was read at DW-29 in 1996, 1997, and 1998. Trend was downward in 1996, downward in 1997, and barely static (17) in 1998. There were no professional observations in 1996.

In March 1997, severe use of winterfat during the 2006 grazing year was indicated. Winterfat plants were pedestalled. No native cool season perennial bunchgrass was present. Skeletons of undesirable invasive species were abundant. No seedlings of desirable species were present. Poor plant cover, production, age class distribution, and diversity.

In March 1998, an abundance of halogeton and Russian thistle was noted. No native perennial bunchgrass was present. No winterfat seedlings were present. Winterfat was pedestalled pretty good.

Key Area DW-30 (Lampson Canyon)

Observed apparent trend was downward (14) at DW-30 in June 1996. No professional observations were noted.

Key Area DW-31 (Southern alluvial fan)

Observed apparent trend was downward (14) at DW-31 in March 2005. Indian ricegrass was of poor vigor, small, & droughty. No cured forage available. No residual seedstalks. Cheatgrass seedlings were numerous and greening. No young age class of native grasses were present. Vegetation cover was observed to be inappropriate for the site with far too much bud sagebrush & other shrubs were present. The desert shrub range was observed to be too poor in native grass composition, cover, and production.

Key Area DW-32 (East of Bull Creek private)

Observed apparent trend was downward (16) at DW-32in March 1998. An abundance of halogeton was present. Perennial grass was noted to be used heavy to severe for the 1997 grazing year. Mostly cow sign was present.

Key Area DW-34 (South of Bull Creek Reservoir)

Observed apparent trend was downward (16) at DW-34 in March 1998. A fine textured soil was present with no gravel. Plant pedestals were observed to be a problem. No native grass was present. Russian thistle was abundant. Older age class, woody winterfat plants were present. Both wild horse and cattle sign were present.

Observed apparent trend was downward (12) at DW-34 in March 2005. No desirable grass was present. Winterfat plants were of fair vigor but pedestalled. The soil was fine textured and very susceptible to erosion. Cheatgrass and mustard were greening. Vegetation cover was inappropriate to the potential of the site.

Key Area DW-35 (Alluvial Fan South of Bull Creek Reservoir)

Observed apparent trend was downward (13) at DW-35 in March 1997. Winterfat was observed to be used severely for the 1996 grazing year. No native perennial bunchgrass was present. Much wild horse tracks, trails, & droppings in the area. Much wild horse trampling in the gully. An abundance of undesirable plant species skeletons were present.

Observed apparent trend was downward (15) at DW-35 in March 2005. Few native grasses were present. Winterfat was of moderate vigor. Halogeton skeletons were numerous. Cheatgrass was greening up. Most litter was from invasive plants. Invasive species were observed to be establishing in gullies. Cheatgrass & halogeton were common in the area.

1.9 Use Patterns

Use pattern mapping accomplished during the 1990s in addition to input from the grazing permittee indicates that cattle generally use the western portion of the Bull Creek/North Railroad Valley Use Area whereas wild horses use the eastern portion. This is confirmed by many visits to the allotment since 1991. There is some overlap of this pattern. The Monte Cristo Wild & Free Roaming Horses Management Plan signed in 1977 recognoized a “Bull Creek Home Range” for wild horses that occurs in the eastern portion of the Bull Creek Area.

2. DUCKWATER ALLOTMENT, BULL CORNER/POISON PATCH USE AREA

2.1 Key Areas and Rangeland Ecological Sites

Table 2.1-1 Duckwater Allotment, Bull Corner/Poison Patch Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-05	T14N R56E S10 SW1/4 NW1/4	Coarse silty 6-8" P.Z. (028BY084NV)	winterfat Indian ricegrass	1820-Sodhouse association
DW-17	T14N R56E S9 SW1/4	Droughty loam 5-8" (028BY078NV)	Spiny hopsage Fourwing saltbush Indian ricegrass	1820-Sodhouse association
DW-20	T15N R55E S29 NE1/4	Silty 8-10" P.Z. (028BY013NV)	winterfat Indian ricegrass	902-Abgese-Risley-Roden Assoc.
DW-25	T14N R55E S2	Silty 8-10" P.Z. (028BY013NV)	winterfat Indian ricegrass	793-Bylo silt loam
DW-40	T14N R55E S11 SW1/4	Shallow calcareous Loam 8-10" P.Z. (028BY011NV)	Black sagebrush Indian ricegrass needleandthread	282-Palinor very Gravelly loam

* HCPC = Historic climax plant community

** Key Areas DW-37, DW-38, & DW-39 also occur in the Bull Corner Use Area, but have thus far primarily been used as areas to study utilization.

DW-05 occurs on the plain about 1.7 miles northerly from "Duckwater Point" towards the Easy Junior Mine.

DW-17 occurs about 1 mile northerly from "Duckwater Point".

DW-20 occurs in the small valley about 1.5 miles north of Nevada Governor's Spring.

DW-25 occurs in a winterfat area west of Poison Wash about 4 miles north of the main Duckwater – Eureka Road.

DW-40 occurs on the alluvial fan in an area of black sagebrush about 1 mile west of a water haul in Poison Wash.

2.2 Licensed Livestock Use- Bull Corner/Poison Patch Use Area

2.2-1. Blue Diamond Oil Corporation

Blue Diamond Oil Corporation is permitted for 2,124 active AUMs of sheep grazing in the Duckwater Allotment with a season of use from 11/01 - 04/15. In the Bull Corner Use Area, this permit is for 1,180 sheep from 11/01 – 04/15 for 1,289 active AUMs. This permit has not been activated since about 1995.

2.2-2. Duckwater Cattle Company

Over the grazing seasons from 1999 to 2008, livestock permitted use on the Duckwater Allotment, Bull Corner Use Area for Duckwater Cattle Company was 826 AUMs of cattle use. Season of use is 11/15 to 01/31. During this same time period, livestock licensed use ranged from a high of 826 AUMs in most years to a low of 720 AUMs in 2000. Livestock use has varied dependent on available forage due to growing conditions, winter conditions, and the needs of the operator. Table 2.2-1 summarizes the licensed use data for this time period on the Bull Corner Use Area. Actual grazing use is summarized in the table on page 85.

Table 2.2-2.Duckwater Allotment, Bull Corner/Poison Patch Use Area Licensed Use by Duckwater Cattle Co.

Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)	Grazing Year	Licensed Use (AUMs)	% Licended Use of Permitted Use (AUMs)
1999	826	100%	2004	826	100%
2000	720	87%	2005	826	100%
2001	826	100%	2006	826	100%
2002	826	100%	2007	826	100%
2003	826	100%	2008	826	100%

2.2-3. Duckwater Shoshone Tribe

The Tribe licenses grazing use each spring for the Duckwater Allotment as a whole. The north portion of the Bull Corner/Poison Patch Use Area has been generally used in even years, while the south portion has been used odd years, in accordance with the rotation system agreed on by the Tribe and BLM. There has been some variance to this, as the Tribe has requested using the lower Poison Wash area or the Red Summit area some even years. This area has been used during the spring, summer, and fall seasons. To some degree cattle grazing is controlled by water haul tanks. Cattle drift in and out of the area.

2.2-4. Paris Livestock

Paris Livestock also licenses sheep use on an allotment wide basis. On a typical winter, sheep may be in this area in January for 7 to 9 days on the way south and again in March for 7 to 9 days on the way north. This use area is the normal access area for the sheep to begin grazing the allotment as they move south in January, and is the normal exit area as the sheep move north in March. The area is entered and exited from near the two track road that is east of the Easy Junior Mine. Sheep numbers vary from 800 to 4000 head in the area.

2.2-5. Thomas and Ellen Gardner

Thomas and Ellen Gardner made use in the Bull Corner/Poison Patch Use Area for about 15 days in February, 2000 with 1325 sheep, or about 131 AUMs.

2.3 Utilization

On June 10, 2008 a KFPM utilization study was completed at Key Area DW-20 in association with a vegetation cover study. Use to date for winterfat was 42% while use of Indian ricegrass was 32%. Range notes recorded on the utilization forms included the following:

Quite a few dead native perennial grasses were present. Grasses were of poor vigor.

On June 10, 2008 a KFPM utilization study was completed at Key Area DW-25 in association with a vegetation cover study. Use to date for winterfat was 21%. Range notes recorded on the utilization forms included the following:

Winterfat was very dry & of poor vigor this year, and quite pedestalled. Winterfat inside the use cage had about 1" of new growth.

On June 10, 2008 a KFPM utilization study was completed at Key Area DW-40 in association with a vegetation cover study. Use to date for winterfat was 27%. Use for Indian ricegrass was 13%. Range notes recorded on the utilization forms included the following:

Indian ricegrass inside the use cage was of poor vigor to 2" high. Winterfat in the cage was of fair vigor to 5" high.

On April 22, 2008 four KFPM utilization transects were read in the Bull Corner/Poison Patch Use Area of the Duckwater Allotment for year long use by herbivores during the 2007 grazing year (March 1 – February 28). Transects were read at Key Areas DW- 17, 5, and other areas typical of the plant communities and grazing patterns in the use area. Use of Indian ricegrass ranged from 38 to 52% and averaged 46% (moderate) for four transects. Use of winterfat ranged from 38% to 46% and averaged 42% (moderate) for four transects. Use of four wing saltbush was 38% at one transect and use of needleandthread grass was 32% at one transect. Range notes recorded on the utilization forms included the following:

At Key Area DW-17 ricegrass in the use cage was of fair vigor with new leaves to 3". Winterfat in the cage was also of fair vigor to 7" tall. Native bunchgrass in the area was somewhat dry & droughty with dead crowns or centers. At Key Area DW-05 winterfat in the use cage was of good vigor to 8" tall. The area was observed to be pretty good salt desert shrub range, with mustard & halogeton growing here some years. Bud sagebrush seedlings are increasing in the area. At transect # 3 towards the Easy Junior Mine sheep, cattle + wild horse use were observed. Needleandthread is the key native grass here, and was observed to be greening up well to 5". At transect # 4, also in the area of the Easy Junior Mine (1.6 miles southwest of the mine) in winterfat dominated salt desert shrub winterfat had the overall look of light to moderate use for the 2007 grazing year. No cheatgrass was present. Native grasses in the area were generally poor in the crown, dry, and probably declining in the area.

On March 19, 2008 six KFPM utilization transects were read in native range of the Bull Corner/Poison Patch Use Area of the Duckwater Allotment for year long use by herbivores. Transects were read at Key Areas DW- 40, 25, 39, 20, and at two other areas typical of the plant communities and grazing patterns in the use area. Use of winterfat ranged from 24 to 74% and averaged 48% (moderate) for five transects. Use of Indian ricegrass was 13% and 51% at two transects. Use of bottlebrush squirreltail was 60% (moderate) at one transect and use of needleandthread grass was 33% at one transect. Range notes recorded on the utilization forms included the following:

At Key Area DW-40 ricegrass inside the use cage was of good cured vigor to 8" tall. Winterfat inside the use cage was also of good cured vigor to 6" tall. Use of black sagebrush was slight or less. Sheep did not trail through this area. No cheatgrass present. Small "pockets" of halogeton averaging 10' diameter are present in the area. At Key Area DW-25 a mixture of winterfat, halogeton, and big sagebrush were present. Winterfat in the use cage of dry, droughty cured vigor to 16" tall, spindly and coarse. This is a dry droughty site with pedestalled plants & mustard also present. Most winterfat plants are old & coarse. Use by cows primarily, with a little wild horse use. No sheep use. Very little to no native grass present. At Key Area DW-39 winterfat inside the use cage was dry, with stems bitten off by rabbits, of fair cured vigor, no new leaves yet. Use in this area primarily by cows + rabbits. At Key Area DW-20 north of Nevada Governor's Spring winterfat in the use cage was of good cured vigor to 12" tall, and coarse. Sihy woolfy, ungrazable, about dead. Indian ricegrass in the area is droughty, with dead centers, and low cured production. Primary user in the area was cattle. Slight use by sheep & wild horses observed. Southwest of the Red Rock water haul about ¼ mile sheep had trailed through this winter. Use in the area was primarily by cows, also by sheep. Winterfat was used heavily (74%) in this area. There was not enough Indian ricegrass for a 10 sample transect. At transect no. 6, a good needlegrass and bluegrass component was observed in Wyoming sagebrush range. No invasive species were present. Sheep had trailed through the area. Use of Stco4 was 33%.

On August 22, 2000 three KFPM utilization transects were read in native range of the Bull Corner/Poison Patch Use Area of the Duckwater Allotment for use to date by herbivores.

Transects were read at Key Areas DW- 39 and at two other areas typical of the plant communities and grazing patterns in the use area. Use of winterfat ranged from 50 to 80% and averaged 63% (heavy) for three transects. Use of Indian ricegrass was 84% (severe) at a transect while use of bottlebrush squirreltail was 82% (severe) at a transect. Range notes recorded on the utilization forms included the following:

At Key Area DW-39 past Nevada Governor's Spring winterfat inside the use cage was of good vigor to 11" tall & in bloom. Sihy to 13" tall, vigorous.

On November 4 and 11, 1999 fourteen KFPM utilization transects were completed in the Bull Corner/Poison Patch Use Area of the Duckwater Allotment for use to date by herbivores. Transects were read at Key Areas DW- 39, 20, 40, and at other study sites typical of the plant communities and grazing patterns of the use area. Use of Indian ricegrass ranged from 10% to 86% and averaged 64% (heavy) for ten transects. Use of winterfat ranged from 18% to 84% and averaged 51% (moderate) for thirteen transects. Use of squirreltail was 82% at one transect. Use of needleandthread was 2% at one transect.

On March 10 and April 22, 1999 five KFPM utilization transects were completed in the Bull Corner/Poison Patch Use Area of the Duckwater Allotment for year long use by herbivores. Transects were read at Key Areas DW- 40, 39, 20, and at other study sites typical of the plant communities and grazing patterns of the use area. Use of Indian ricegrass ranged from 10 to 74% and averaged 48% (moderate) for four transects. Use of winterfat ranged from 28% to 86% and averaged 65% (heavy) for four transects. Use of needlegrass was recorded at 2% for one transect and use of bottlebrush squirreltail was 48% at one transect. Range notes recorded on the utilization forms included the following:

At Key Area DW-40 west of the water haul ricegrass and winterfat inside the use cage were of excellent vigor – thick, tall, and robust. Mostly cow use for the grazing year. A little sheep use. At Key Area DW-39 winterfat in the use cage was growing to 9" tall & was vigorous. Sihy in the cage to 14" tall. Fine textured, loose soil – no gravel. Cow + wild horse use. Little to no sheep use. At Key Area DW-20 the plant community looked good. Mostly cow use, then some sheep use from last year. At Study Site B, again mostly cow use, a little sheep use. At Sudy Site C, the perennial grass looked good. Sheep came north this way.

Additional information on key species utilization is presented below under the Observed Apparent Trend section (2.9).

2.4 Line Intercept Cover Studies

Vegetation cover data was gathered in Bull Corner/Poison Patch Use Area of the Duckwater Allotment in June 2008. The results of the vegetation cover studies are presented in the following table:

Table 2.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – Bull Corner/Poison Patch Use Area

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration
DW-40/ 6/10/08	N: 4328257 E: 607378	28BY011NV Shallow calcareous loam 8-10"	8.51 feet/ 9.01 feet potential 15-20 feet	Biotic crust present	No excess trampling or compaction.
DW-25/ 6/10/08	N: 4329690 E: 608325	28BY013NV Silty 8-10"	4.83 feet/ 17.12 feet potential 10 to 20 feet	No biotic crust present	Area moderately trampled, hoof action on sensitive soils. Many plants pedestalled.
DW-20/ 6/10/2008	T. 15N., R. 55E., Sec. 29 NE 1/4	28BY013NV Silty 8-10"	5.87 feet/ 8.29 feet potential 10-20 feet	No biological surfaces present	Area trampled pretty good. Plants pedestalled. Lots of hoof action.

* Key Area DW-40 is located in black sagebrush range a little over a mile west of the main Poison Wash. Key Area DW-25 is located on Road 4107 in winterfat dominated salt desert shrub range about ½ mile west of the main Poison Wash. Key Area DW-20 is located in salt desert shrub range about 1.5 miles north of Nevada Governor's Spring.

2.4-2. Composition by Cover

Species composition by cover at Key Areas DW-40, DW-25, and DW-20 is as follows:

DW-40		***DW-25***		***DW-20***	
Black sagebrush	67%	Winterfat	96%	Winterfat	99%
Rabbitbrush	28%	Halogeton	4%	Indian ricegrass	1%
Indian ricegrass	3%			Mustard	Trace
Astragalus	1%	Shrubs	100%		
Penstemon	1%				
Winterfat	Trace			Shrubs	99%
Shrubs	95%				

Cheatgrass did not occur at the above vegetation cover study sites.

2.5 Ecological Condition Information Including Similarity Index – Bull Corner/Poison Patch Use Area

Table 2.5-1. Ecological Condition Information at DW-05 (Bull Corner/Poison Patch Use Area)

Key Area: DW-05 (Study conducted east of the county road in a droughty loam ecological site more typical of the range in this portion of the use area). DW-05 is in a coarse silty ecological site.
Date: 07/14/1992
Range Site: Droughty loam 5-8" P.Z. (028BY078NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	26.9%	10-20%	20%
squirreltail	SIHY	3.2%	2-5%	3%
globemallow	SPHAE	1.2%	2-5%	1%
fourwing saltbush	ATCA2	19.8%	15-30%	20%
rabbitbrush	CHRYS9	24.1%	2%	2%
Nevada ephedra	EPNE	23.9%	2%	2%
winterfat	EULA5	4.3%	2-5%	4%

Similarity Index 55% (late seral stage) - Only a trace of cheatgrass was recorded in the study. However cheatgrass occurs at DW-05 on the west side of the two track road. Trend was recorded as not apparent.
Overall Production: 253 pounds per acre (air dry wt.) Unfavorable year production is 400 pounds per acre. Normal year production is 500 pounds per acre.
Potential vegetative composition is about 25% grasses, 15% forbs, and 60% shrubs.
Current composition is about 27% grasses, 1% forbs, and 60% shrubs.
Plant community dynamics: Where management results in abusive livestock use, Indian ricegrass and fourwing saltbush will decrease, while horsebrush, rabbitbrush & spiny hopsage will increase.
*from Ecological Site Description

Table 2.5-2. Ecological Condition Information at DW-40 (Bull Corner/Poison Patch Use Area)

Key Area: DW-40
Date: 06/10/2008
Range Site: Shallow calcareous loam 8-10" P.Z. (028BY011NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	3.8%	20-35%	4%
phlox	PHLOX	0.4%	2%	0%
penstemon	PENST	0.4%	2%	0%
astragalus	ASTRA	0.4%	2%	0%
black sagebrush	ARNO4	66.7%	25-35%	35%
downy rabbitbrush	CHVIP4	23.9%	2-5%	5%
winterfat	KRLA2	4.3%	3%	3%

Similarity Index: 50% (mid seral stage) - No cheatgrass was recorded in the ecological condition study. Trend was recorded as not apparent.
Overall Production: 234 pounds per acre (air dry wt.) Unfavorable year production is 250 pounds per acre. Normal year production is 400 pounds per acre.
Potential vegetative composition is about 50% grasses, 5% forbs, and 45% shrubs.
Current composition is about 4% grasses, 1% forbs, and 95% shrubs.
Plant community dynamics: As ecological condition declines, black sagebrush, rabbitbrush, & shadscale increase, while perennial grass, palatable shrubs & forbs decrease. Cheatgrass & halogeton are species likely to invade this site. Utah juniper readily invades this site where it occurs adjacent to woodlands. When Utah juniper occupies this site, it competes with other species for available light, moisture, & nutrients. If tree canopies are allowed to close, they can eliminate all understory vegetation.
*from Ecological Site Description

2.6 Frequency Trend

Frequency trend studies have been established on four native key grazing areas in the Bull Corner/Poison Patch Use Area of the Duckwater Allotment. Frequency trend studies involve measuring the frequency of occurrence of plant species that occur in a rectangular sampling area. A sampling frame divided into 3", 10", and 20" square plots is placed at 200 sampling locations within the overall rectangular area. The presence of plant species is recorded as a dot tally on a standardized form.

Table 2.6-1. Frequency Trend Data - Bull Corner/Poison Patch Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-25	1995/2008	Less Indian ricegrass Less winterfat More halogeton	Declining
DW-20	1994/2000	More Indian ricegrass More bottlebrush squirreltail More cheatgrass Less halogeton More winterfat	Static
DW-17	1993/1999	Less Indian ricegrass Less Fourwing saltbush More cheatgrass	Declining

		Less halogeton	
		More bud sagebrush	

Key Area	Years Read	Significant Changes	Indicated Trend
DW-05	1989/1999	More bottlebrush squirreltail	Declining
		Less globemallow	
		More cheatgrass	
		More halogeton	
		More bud sagebrush	
		More mustard	

2.7 Drought Indicator Checklist

No drought indicator checklists have been completed for this use area.

2.8 Observed Apparent Trend

The observed apparent trend study is used to rate five indicators of rangeland health - plant vigor, plant seedling establishment, surface litter, plant pedestalling, and soil gullies. This study was used by the Ely District BLM primarily during the 1990s, however the results are still useful to date. A numerical rating is obtained, as follows:

26 -35 = Upward trend 17 -25 = Static trend 7 – 16 = Downward trend

Key Area DW-05

In August of 1994, observed apparent trend was downward (9) at Key Area DW-05. Notes from 1994 indicate a very poor site. Gullies & pedestalling are bad. Plant vigor is por. Very few forbs are present this summer with the exception of halogeton.

In August of 1999, observed apparent trend was again downward (16) at DW-05. Notes from 1999 indicate halogeton was abundant. Lots of hoof action in crusty silt clay, better species not establishing. Dead winterfat stalks are numerous. Forage plants are pedestalled. Squirreltail, cheatgrass, & halogeton appear to be increasing. Mustard also present. Soils negeatively impacted.

Key Area DW-17

In July of 1993, observed apparent trend was upward (26) at Key Area DW-17. Notes from 1993 indicate quite a few Indian ricegrass seedlings; some halogeton invasion. Four wing saltbush was recovering somewhat from drought years. Winterfat & ricegrass were healthy in the area… spring & summer use high slight to low light.

Key Area DW-20

In September of 1994, observed apparent trend was static (17) at Key Area DW-20. Notes from 1994 indicate gullies apparent, moderate plant pedestalling, and abundant cow sign was present. A fair cured native grass component was present. Moderate vigor plants – very dry.

In October 2000, observed apparent trend was again static (19) at DW-20. Notes from 2000 indicate use of Indian ricegrass to date was 78% while use of winterfat was 52%.

Key Area DW-25
In July of 1995, observed apparent trend was downward (15) at Key Area DW-25. Notes from 1995 indicate use to date of winterfat was 48%, mostly cow use. A superabundance of halogeton, stickseed, and mustard was present. The soil was observed as unstable & fine textured. Lots of cow tracks & sign in the area.

3. DUCKWATER ALLOTMENT, DUCKWATER HILLS USE AREA

3.1 Key Areas and Rangeland Ecological Sites

Table 3.1-1 Duckwater Allotment, Duckwater Hills Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominate Species of HCPC*	Soil Mapping Unit
DW-14	T14N R56E S35 NW1/4	Silty 5-8" P.Z. (028BY018NV)	winterfat Indian ricegrass	660-Stewval-Rock outcrop complex
DW-26	T14N R56E S21 SW1/4	Loamy Slope 5-8" (029XY022NV)	Shadscale Galleta grass Indian ricegrass	660-Stewval-Rock outcrop complex
DW-41	T12N R56E S14 NW1/4 SE1/4	Gravelly loam 5-8" (029XY087NV)	Bailey greasewood Shadscale Indian ricegrass	3805-Lyda-Hardhat association
DW-42	T13N R56E S2 NW1/4	Shallow calcareous Slope 8-12" (029XY014NV)	Black sagebrush Indian ricegrass needleandthread	660-Stewval-Rock outcrop complex
DW-43	T14N R56E S21 SE1/4	Shallow calcareous loam 8-10" (028BY011NV)	Black sagebrush Indian ricegrass Needleandthread	650-Eaglepass-Kyler-rock outcrop association

* HCPC = Historic climax plant community

** Key Areas DW-41, DW-42, & DW-43 in the Duckwater Hills Use Area have thus far primarily been used as areas to study utilization.

DW-14 occurs on a small fan in a cove about 1 mile southwest of Bull Creek Ranch.

DW-26 occurs in the north Duckwater Hills about 0.8 miles south of "Duckwater Point."

DW-41 occurs on the alluvial bench in an area of greasewood about 1.5 miles east of the Duckwater School.

DW-42 occurs in the hills just west of Black Point.

DW-43 also occurs in the north Duckwater Hills about 0.5 miles easterly from DW-41.

3.2 Licensed Livestock Use

3.2-1. Blue Diamond Oil Corporation

Blue Diamond Oil Corporation did not make sheep grazing use in this use area during the period 1999 through 2008, and has not activated the sheep permit since about 1995.

3.2-2. Duckwater Cattle Company

The Duckwater Hills Use Area is divided into west and east pastures by the unfenced north/south ridgeline. Duckwater Cattle Company is permitted east of the ridgeline, the Shoshone Tribe is permitted west of the ridgeline, and Blue Diamond Oil Corporation is permitted throughout the use area. Licensed use for Duckwater Cattle Company on the Duckwater Allotment, Duckwater Hills Use Area is included with their Bull Creek Use (see Table 2.2-1).

3.2-3. Duckwater Shoshone Tribe

Licensed use for the Duckwater Shoshone Tribe in the Duckwater Hills Use Area is included with their allotment wide annual billing. Overall in this use area, grazing use has been limited and has not been regular. Prior to 2007, regular use was made in an area of the Duckwater Hills near Big Warm Springs. Cattle no longer have access to this water source. Also, use was made one year (about 2001) in the north portion of the Duckwater Hills associated with the "hondo tank" water haul that was placed near the gravel pit in the south portion of the Bull Corner Use Area.

3.3 Utilization

On June 4, 2009 four KFPM transects were read on the west side of the Duckwater Hills Use Area for use to date by herbivores during the 2009 growing season. Transects were read on the broad alluvial bench at Key Area DW-26 and at three other study sites typical of the grazing patterns and plant communities in the use area. Use of Indian ricegrass at one transect was 4% (slight). Use of winterfat at one transect was 34% (light). Use of four wing saltbush at one transect was 15% (slight). Use of galleta grass at one transect was 0%. Use of needleandthread at DW-26 was 4% (slight). Range notes recorded on the utilization forms included the following:

At SS-02 as much four wing saltbush was available as a key species as winterfat. Very slight use of green molly kochia was noted. Green molly kochia was a common plant in the use area. At SS-03 native grass plants were very infrequent and were of poor vigor. There were not enough plants of Indian ricegrass or winterfat for 10 samples. At Key Area DW-26 Indian ricegrass, winterfat, and needleandthread inside the use cage were of good vigor each to about 12" tall. Phoographs from June 4, 2009 show stable soils of the alluvial bench and desert shrubs in fair to good vigor for the 2009 growing year.

On May 22, 2009 five KFPM transects were read on the east side of the Duckwater Hills Use Area for use to date during the 2009 growing season. Transects were read at Key Areas DW-41, DW-42, and at three other study sites that were typical of the grazing patterns and plant communities in the use area. Use of Indian ricegrass ranged from 1 to 32% and averaged 13% (slight) for five transects. Use of winterfat ranged from 8 to 22% and averaged 15% (slight) for three transects. Use of galleta grass was 0% at one transect.

On April 22, 2008 seven KFPM utilization transects were read in the Duckwater Hills Use Area for year long use by herbivores. Transects were read at Key Areas DW- 41, 42, 14, 43, and 38 as well as at other areas typical of the plant communities and grazing patterns in the use area. Use of Indian ricegrass ranged from 61 to 80% and averaged 69% (heavy) for four transects. Use of winterfat ranged from 9 to 62% and averaged 44% (moderate) for four transects. Use of galleta grass was 4 and 6% at two areas, and use of bottlebrush squirreltail was 9% at Key Area DW-14. Use of black sagebrush by sheep was 16% at Key Area DW-38. Range notes recorded on the utilization forms included the following:

At Key Area DW-41 in the south portion of the Duckwater Hills galleta grass in the cage was of good cured, dense vigor with seedstalks to 14" tall, and green growth beneath the cured. Lots of healthy bud sagebrush in the area, and no invasive species. Fine gravelly stable soil. Use of current green growth of galleta grass was about 7%. At 2.3 miles north of Key Area DW-41 in mixed salt desert shrub range bud sagebrush appeared to be dominant. No cheatgrass was present. Halogeton was less than 1% of current annual growth as perceived from cured stems. Shrubs were in good vigor & very little native grass was present. Good winterfat component. At 5 miles north of the key area bud sagebrush was increasing in the plant community…many young plants of bud sagebrush were present.

At Key Area DW-42 Indian ricegrass inside the use cage was of good cured vigor with good green growth with the cured (see photo). This is small rabbitbrush dominated salt desert shrub range. No cheatgrass was present. Halogeton nearby was less than 1% of current annual production. Cow + wild horse use for the grazing year. At Key Area DW-14 in the Duckwater Hills 1.0 miles southwest of the Bull Creek Ranch winterfat in the use cage was of good vigor to 6" tall. New winterfat seedlings were in the use cage. Cheatgrass grew to about 2" here last year but was not growing in the current year. Not enough ricegrass present to obtain 10 samples. Current years use of bottlebrush squirreltail was about 9%. At Key Area DW-43 in the north Duckwater Hills sheep sign from winter was present. Combined use by sheep, cows, + wild horses was indicated. Use of black sagebrush by sheep was slight or less from winter sheep grazing. Ricegrass in the use cage was of good cured vigor with new green leaves to 8". At Key Area DW-38 in winterfat dominated salt desert shrub range winterfat in the use cage was of good vigor to 10" tall. Ungrazed ricegrass was woolfy with little new growth. Use of black sagebrush in the area was light or less for 2007 use. Heavy sheep sign was observed in the area from winter. Overall use in the area was from combined sheep, cattle, and wild horses.

On March 18, 2008 two KFPM utilization transects were read in the north Duckwater Hills Use Area for year long use by herbivores. Transects were read at Key Area DW 26 and one other typical area near the key area. Use of Indian ricegrass at the areas was 60% and 56% (moderate). Use of winterfat at DW-26 was 42% (moderate). Range notes recorded on the utilization form included the following:

A fair to good native perennial grass component was noted at Key Area DW-26. Bud sagebrush was greening, as were some of the native grass plants, to 2" leaves. Use of black sagebrush in the area was slight or less by sheep. Overall use in the area for the 2007 grazing year was combined use by cattle, wild horses, and sheep. Use of black sagebrush at the second transect was light or less. Cheatgrass occurred at Transect no. 2, but did not grow much during 2007 and did not pose a fire risk.

On August 7, 2001, utilization on Indian ricegrass at DW-14 was measured at 56%.

On November 2, 2000 six utilization transects were read on the west side of the Duckwater Hills Use Area for use to date by herbivores. The transects were conducted at the request of the Tribe. The Tribe requested to do some winter grazing beginning in November. A map of the transect locations was made along with a memorandum written, describing general range conditions. Use of Indian ricegrass ranged from 2 to 68% and averaged 24% for six transects. Use of galleta grass ranged from 5 to 50% and averaged 20% for four transects. Use of winterfat was 52% at one transect. Range notes recorded on the utilization form or notes from the range memorandum included the following:

Basically use levels by cattle were higher west of the cemetery and on the bench areas than in the hills themselves. The native grasses present were primarily galleta grass and Indian ricegrass. Halogeton was common throughout the area. At the first transect ricegrass and winterfat were relatively infrequent. The stubble height of ricegrass averaged 1 to 2" and cured galleta grass leaves averaged about 1" high. Galleta grass did not produce much seed during the growing season. At the third transect ricegrass was infrequent & plants were small. A little four wing saltbush, cliffrose, and Morman tea was present. Galleta grass was a little more productive than on the bench.

The recommendation from the monitoring data was not to graze cattle in the area during the winter. In the hills themselves there was sufficient forage to graze about 30 head of cattle for 2 months however cattle will not use the area unless water is hauled directly to the middle of the hills. Cattle that traditionally water at Big Springs would only use the bench area where use levels are already above proper levels, and would not get into the hills where the available forage is.

3.4 Line Intercept Cover Studies

Vegetation cover data was gathered at one key area and three study sites on the west side of the Duckwater Hills Use Area on June 4, 2009. Most of the growing season was over however a little additional growth of range plants was expected.

Table 3.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – Duckwater Hills Use Area – West Side

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration.
DW-26 6/4/2009	N: 4324210 E: 614003	29XY022NV Loamy slope 5-8”	9.17 feet/ 2.89 feet Potential 10-20 feet	Biotic crusts not present at this site.	No excess trampling or compaction. No plant pedestalling.
SS-I 6/4/2009	N: 4314921 E: 612942	29XY017NV Loamy 5-8”	15.61 feet/ 1.57 feet Potential 15-25 feet	Biotic crusts not present at this site.	No excess trampling or compaction. No plant pedestalling.
SS-II 6/4/2009	N: 4319875 E: 611631	29XY016NV Loamy upland 5-8”	19.06 feet/ 4.82 feet Potential 20-30 feet	Some biotic crusts present in shrub interspaces.	No excess trampling or compaction. No invasive species.
SS-III 6/4/2009	N: 4322270 E: 612612	29XY017NV Loamy 5-8”	13.87 feet/ 3.35 feet Potential 15-25 feet	Biotic crusts not present at this site.	No excess trampling or compaction. No plant pedestalling.

Vegetation cover data was gathered at two key areas and three study sites on the east side of the Duckwater Hills Use Area on May 22, 2009. Most of the growing season was over however a little additional growth of range plants was expected.

Table 3.4-2. Line Intercept Vegetation Cover Data - Duckwater Allotment – Duckwater Hills Use Area – East Side

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration.
DW-41 5/22/2009	N: 4306670 E: 617775	29XY087NV Gravelly loam 5-8"	22.99 feet/ 0.21 feet Potential 15-25 feet	Biotic crusts not present at this site	No excess trampling or compaction.
SS-A 5/22/2009	N: 4310681 E: 619612	29XY017NV Loamy 5-8"	18.00 feet/ 4.65 feet Potential 15-25 feet	Biotic crusts not present at this site	No excess trampling or compaction.
SS-B 5/22/2009	N: 4314376 E: 619356	29XY022NV Loamy slope 5-8"	16.51 feet/ 3.36 feet Potential 10-20 feet	Biotic crusts not present at this site	No excess trampling or compaction.
SS-C 5/22/2009	N: 4318749 E: 618190	29XY008NV Shallow calcareous loam 8-12"	20.79 feet/ 0.78 feet Potential 20-30 feet	Some biotic crusts present under shrubs & on rocks	No excess trampling or compaction.
DW-42 5/22/2009	N: 4320267 E: 617442	29XY014NV Shallow Calcareous slope 8-12"	13.44 feet/ 6.09 feet Potential 15-25 feet	Not recorded	No excess trampling or compaction.

Range notes from the line intercept vegetation cover forms indicate the following:

At DW-41 the soils were stabilized by a fine gray gravel fragments and live vegetation. No plant pedestalling or soil movement due to erosion was noted. Biotic crusts not appropriate to this type of volcanic gravel. Achieving upland sites standard. At Study Site-A soils were stabilized by surface fragments, live vegetation, and litter. Many perennial and annual forbs were sprouting, a good forb component was present. Ricegrass, squirreltail, and galleta grass are going to make a good seed crop this year. Desert shrubs in this area are vigorous this year. At Study Site B soils were stabilized by a fine gravel soil, live vegetation, litter, and rock. No plant pedestalling. Plant diversity was good. No invasive species present. Darl volcanic gravel. At Study Site C soils were stabilized by fine red gravel. Some biotic crusts were present under shrubs & on rocks. No plant pedestalling or surface erosion. No to slight use by cows + wild horses. At DW-42 soils were again stabilized by surface fragments, live vegetation, & litter. No plant pedestalling. Few invasive species. light cow or horse tracks. Dead or droughty native perennial cool season bunchgrasses were present.

3.4-3. Composition by Cover

Species composition by cover for Key Areas & Study Sites on the west side of the Duckwater Hills Use Area on June 4, 2009 is as follows:

DW-26		***SS-I***	
Rabbitbrush	64.2%	Bailey greasewood	52.4%
Winterfat	5.5%	Bud sagebrush	25.9%
Mentzelia	8.8%	Spiny hopsage	6.5%
Mormon tea	4.9%	Green molly kochia	6.3%
Galleta grass	4.8%	Shadscale	3.6%
Spiny hopsage	4.5%	Rabbitbrush	3.2%
Indian ricegrass	2.5%	Galleta grass	1.0%
Needleandthread	2.3%	Waterleaf	0.4%
Astragalus	1.1%	Cordylanthus	0.4%
Squirreltail	0.9%	Perennial forb	0.2%
Waterleaf	1.5%		
		92% shrubs	
79% shrubs			
SS-II		***SS-III***	
Rabbitbrush	56.7%	Mormon tea	30.0%
Spiny hopsage	30.0%	Bud sagebrush	29.1%
Bud sagebrush	5.5%	Shadscale	18.8%
Four wing saltbush	4.9%	Rabbitbrush	14.2%
Eriogonum	1.5%	Eriogonum	7.9%
Waterleaf	0.9%		
Globemallow	0.5%	92% shrubs	
97% shrubs			

Species composition by cover for Key Areas & Study Sites on the east side of the Duckwater Hills Use Area on May 22, 2009 is as follows:

DW-41		***SS-A***		***SS-B***	
Greasewood	79%	Shadscale	41%	Rabbitbrush	38%
Bud sagebrush	13%	Bud sagebrush	25%	Bud sagebrush	35%
Spiny hopsage	4%	Rabbitbrush	20%	Winterfat	7%
Galleta grass	2%	Winterfat	5%	Horsebrush	6%
Squirreltail	1%	Moorman tea	3%	Kochia Americana	6%
Astragalus	1%	Black sagebrush	2%	Indian ricegrass	2%
Perennial forb	1%	Galleta grass	1%	Moorman tea	2%
Fiddleneck	Trace	Waterleaf	1%	Buckwheat	1%
		Globemallow	1%	Shadscale	1%
96% shrubs		Indian ricegrass	1%	Spiny hopsage	1%
		Squirreltail	Trace	Squirreltail	Trace
		Buckwheat	Trace	Waterleaf	Trace
		Fiddleneck	Trace		
				90% shrubs	
		96% shrubs			
SS-C		***DW-42***			
Black sagebrush	93%	Rabbit brush	55%		
Moorman tea	4%	Spiny hopsage	23%		
Long leaf phlox	1%	Shadscale	11%		
Indian paintbrush	1%	Indian ricegrass	5%		
Rabbitbrush	1%	Moorman tea	3%		
Indian ricegrass	Trace	Bud sagebrush	1%		
		Globemallow	1%		
98% shrubs		Perennial forb	1%		
		Waterleaf	Trace		
		93% shrubs			

3.5 Frequency Trend Data – Duckwater Hills Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-14	1993/1999	More cheatgrass	Static
		Less halogeton	
		More ricegrass	
		More squirreltail	

Key Area	Years Read	Significant Changes	Indicated Trend
DW-26	1995/2000	More squirreltail	Static
		More cheatgrass	
		More needlegrass	
		Less rabbitbrush	
		Less winterfat	

3.6 Observed Apparent Trend

Key Area DW-14

In July of 1993, observed apparent trend was static (19) at Key Area DW-14. There are no field notes from 1993 for this study.

In July of 1995, observed apparent trend was static (22) at Key Area DW-26. There are no field notes from 1995 for this study.

In July of 2000, observed apparent trend was also static (18) at Key Area DW-26. Field notes indicate very dry conditions. Use of ricegrass estimated to be about 50% for the current year to date, by cattle. Ricegrass inside the use cage was vigorous with leaves to 10" and seedstalks to 18".

4. DUCKWATER ALLOTMENT, GREEN SPRINGS USE AREA

4.1 Key Areas and Rangeland Ecological Sites

Table 4.1-1 Duckwater Allotment, Green Springs Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-01	T15N R56E S13 NE1/4 SW1/4	Coarse Silty 6-8" P.Z. (028BY084NV)	winterfat and Indian ricegrass	353—Heist silt loam
DW-18	T14N R57E S5 NW1/4 SW1/4	Silty 5-8" P.Z. (028BY018NV)	winterfat and Indian ricegrass	321—Palinor association
DW-46	T15N R57E S19 NW1/4 NW1/4	Silty 8-10" P.Z. (028BY013NV)	winterfat and Indian ricegrass	353—Heist silt loam
DW-48	T15N R56E S35 SW1/4 SW1/4	Coarse Silty 6-8" P.Z. (028BY084NV)	winterfat and Indian ricegrass	282—Palinor very gravelly loam
DW-51	T14N R57E S7 SE1/4 NE1/4	Silty 8-10" P.Z. (028BY013NV)	winterfat and Indian ricegrass	353—Heist silt loam

* HCPC = Historic climax plant community

** Key Areas DW-47, DW-49, and DW-50 also occur in the Green Springs Use Area. Thus far these areas have been studied primarily for key species utilization.

DW-01 occurs in a prominent area of winterfat about 2 miles north of the reservoir on the west side of the valley.

DW-18 occurs on the alluvial fan about 1 mile southwesterly from the Green Springs Ranch.

DW-46 occurs in a winterfat area about 0.7 miles west of the old windmill & well.

DW-48 occurs on the alluvial fan in the west portion of the valley just south of Tiger Mountain.

DW-51 occurs on the alluvial fan about 3.0 miles southwesterly from Green Springs Ranch.

4.2 Licensed Livestock Use

Over the grazing seasons from 1999 to 2008, cattle permitted use on the Duckwater Allotment, Green Springs Use Area for Duckwater Cattle Company was 895 AUMs of cattle use (800 cows 5/23 to 6/20 for 763 AUMs & 335 cows 9/19 to 9/30 for 132 AUMs). During this same time period, livestock licensed use ranged from a high of 895 AUMs in 2005 to a low of 381 AUMs in 2004. Livestock use has varied dependent on available forage due to growing conditions and the needs of the operator. Table 5.2-1 summarizes the licensed use data for this time period. Actual grazing use is summarized in the table on page 85.

Table 4.2-1.Duckwater Allotment, Green Springs Use Area Licensed Use by Duckwater Cattle Co.

Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)	Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)
1999	827	92%	2004	381	43%
2000	865	97%	2005	895	100%
2001	821	92%	2006	842	94%
2002	855	96%	2007	763	85%
2003	405	45%	2008	763	85%

4.3 Utilization

Key forage plant method utilization was used to collect utilization data at the key areas on the Duckwater Allotment, Green Springs Use Area. Utilization data was gathered on March 27 and April 17 2008, June 12 2002, and August 23 2000. Utilization for the allotment is summarized in Table 4.3-1. Use was recorded for all herbivory. (Y) = utilization for year long use. (C) = utilization for current year's use.

Table 4.3-1.Duckwater Allotment, Green Springs Use Area Utilization

Key Area	Key Species	Month/Year	Utilization	Use Level
DW-01	winterfat	March 2008(Y)	slight	3%
		June 2002(C)	moderate	48%
	Indian ricegrass	March 2008(Y)	slight	16%
		June 2002(C)	severe	84%
DW-02	winterfat	April 2008(C)	slight	4%
DW-18	winterfat	March 2008(Y)	light	40%
	bottlebrush squirreltail	March 2008(Y)	light	37%
	Indian ricegrass	March 2008(Y)	moderate	46%
DW-48	winterfat	March 2008(Y)	light	32%
	Indian ricegrass	March 2008(Y)	moderate	44%
DW-49	wintefat	March 2008(Y)	moderate	46%
	Indian ricegrass	March 2008(Y)	moderate	52%
DW-51	winterfat	March 2008(Y)	moderate	46%
	bottlebrush squirreltail	March 2008(Y)	light	33%
	Indian ricegrass	March 2008(Y)	heavy	63%
DW-50	winterfat	June 2002(C)	light	37%
	Indian ricegrass	June 2002(C)	moderate	64%
DW-46	winterfat	August 2000(C)	moderate	48%
	bottlebrush squirreltail	August 2000(C)	heavy	66%

Information on key species utilization is also presented in the Drought Indicator Checklist section below (4.7) and the Observed Apparent Trend section (4.8).

Professional observations from the March and April 2008 utilization studies are as follows:

There were no observations at DW-01. At DW-02 lots of wild horse sign was present. At DW-18 cow, wild horse, and rabbit use was noted. Ricegrass & winterfat inside the use cage was of good cured vigor to 11" tall. Cured & gray halogeton was present. At DW-48 multiple age classes of the shrubs winterfat & bud sagebrush were noted. At DW-49 there were no observations. At DW-51 winterfat and squirreltail inside the use cage were of good vigor. Both wild horse & cow sign were present.

On June 2, 2008 two KFPM utilization transects were completed in Green Springs Valley for use to date by herbivores, prior to cattle turnout in the area. At DW-01 use of Eula was 9% while that of Indian ricegrass was 27%. At DW-51 use of Eula was 13% while use of Indian ricegrass was 11%. Professional observations on the use form are as follows:

At DW-01 ricegrass was not very frequent in the area, of low to fair vigor. Plants were small. There were no observations at DW-51.

On March 17, 2009 two KFPM utilization transects were conducted in native sagebrush range in the east and northeast portion of the use area for year-long use of the key species Indian ricegrass, needleandthread, and winterfat. Photos were also taken. Use of Indian ricegrass at SS-1 (black sagebrush site) was 32% while use of winterfat was 28%. Use of ricegrass at SS-2 (Wyoming sagebrush site) was 3% while use of needleandthread was 2%. Professional observations were recorded as follows:

At SS-1 a stable gravel soil was present. Black & white biotic crusts were abundant. No invasive species were present. Year-long use was by both wild horses and cattle. A diversity of native vegetation was present. At SS-2 a stable gravel soil was again present. Black & white biotic crusts were abundant. No invasive species were present.

4.4 Line Intercept Cover Studies

Line intercept vegetation cover studies have been conducted at five key areas on the Duckwater Allotment, Green Springs Use Area in June 2008. Table 4.4-1 summarizes the cover data collected at key areas on native rangeland.

Table 4.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – Green Springs Use Area

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration.
DW-01/ 6/2/2008	N: 4335862 E: 619055	28BY084NV Coarse silty 6-8”	17.47 feet/ 6.84 feet Potential 10-20 feet	Black & orange crust present in interspaces	No excess trampling or compaction.
DW-18/ 6/12/2008	N: 4329315 E: 621903	28BY018NV Silty 5-8”	6.03 feet/ 2.14 feet Potential 5-15 feet	A few biotic crusts under shrubs	Not observed.
DW-46/ 6/3/2008	N: 4335006 E: 621365	28BY013NV Silty 8-10”	9.78 feet/ 7.89 feet Potential 10-20 feet	Some black biotic crusts present, mainly under winterfat shrubs.	No excess compaction. Some cattle trails present.
DW-48/ 6/3/2008	N: 4330348 E: 626823	28BY084NV Coarse silty 6-8”	8.60 feet/ 7.95 feet Potential 10-20 feet	Black biotic crusts forming in interspaces	No soil compaction.
DW-51/ 6/2/2008	N: 4327915 E: 621381	28BY013NV Silty 8-10”	9.45 feet/ 12.21 feet Potential 10-20 feet	Black biotic crust present in interspaces	No excess trampling or compaction.

4.4-2. Composition by Cover- Green Springs Use Area

Species composition by cover at Key Areas DW-01, DW-18, DW-46, DW-48, and DW-51 is as follows:

DW-01		***DW-18***		***DW-46***	
Winterfat	94%	Winterfat	98%	Winterfat	100%
Indian ricegrass	1%	Halogeton	1%	Squirreltail	Trace
Bud sagebrush	4%	Squirreltail	1%		
Bluegrass	1%				
Squirreltail	Trace			Shrubs	100%
		Shrubs	98%		
Shrubs	98%				
DW-48		***DW-51***			
Winterfat	38%	Winterfat	79%		
Rabbitbrush	37%	Rabbitbrush	11%		
Bud sagebrush	21%	Bud sagebrush	6%		
Indian ricegrass	1%	Indian ricegrass	1%		
Bluegrass	2%	Squirreltail	2%		
Squirreltail	1%	Halogeton	Trace		
Globemallow	1%				
		Shrubs	96%		
Shrubs	96%				

Cheatgrass did not occur at the above vegetation cover study sites.

4.5 Ecological Condition Information Including Similarity Index

Tables 4.5-1 – 4.5-5 summarize ecological condition data for the Duckwater Allotment, Green Springs Use Area.

Table 4.5-1.Total Annual Yield and Composition of Duckwater Allotment, Green Springs Use Area Key Areas

Key Area: DW-01
Date: 06/02/2008
Range Site: Coarse Silty 6-8" P.Z. (028BY084NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	1%	40-50%	1%
bluegrass	POA	trace	2%	---
bottlebrush squirreltail	ELEL5	2%	2-5%	2%
winterfat	KRLA2	93%	20-30%	30%
bud sagebrush	PIDE4	3%	5-15%	3%

Similarity Index: 36% (mid seral stage). Trend was recorded as not apparent.
Overall Production: 348 pounds per acre (air dry wt.) Normal year production is about 700 pounds per acre. Unfavorable year production is about 400 pounds per acre.
Potential vegetative composition is about 55% grasses, 10% forbs, and 35% shrubs.
Current composition is about 3% grasses, 0% forbs, and 96% shrubs.
Plant community dynamics: As ecological condition declines, Douglas' rabbitbrush and shadscale increase, while winterfat and Indian ricegrass decrease. With further site degradation, cheatgrass, halogeton and annual mustards invade the interspace areas between shrub species. On heavily disturbed sites, annual species, particularly halogeton, become dominant. Following wildfire, particularly through communities in lower ecological condition, snakeweed often becomes the dominant plant.
*from Ecological Site Description

In 1989, DW-01 was found to be producing about 306 pounds per acre. 97% of the production was winterfat, 1.6% was squirreltail, and 1.3% was Indian ricegrass. No cheatgrass or mustard was present. A similarity index was not determined.

In 1991, DW-01 was found to produce about 200 pounds per acre. 99% of the production was winterfat and 1% ricegrass. A trace of cheatgrass & mustard were present. Similarity index was 29% (mid seral).

In 1992, DW-01 was found to produce about 374 pounds per acre. 86% of the production was winterfat and 9% ricegrass, 4% squirreltail. No forbs in either 1991 or 1992. A trace of cheatgrass was present. Similarity index was 53% (late seral) based on production.

Table 4.5-2.Total Annual Yield and Composition of Duckwater Allotment, Green Springs Use Area Key Areas

Key Area: DW-18
Date: 06/12/2008
Range Site: Silty 5-8" P.Z. (028BY018NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
bottlebrush squirreltail	ELEL5	2%	2-8%	2%
cheatgrass	BRTE	trace	---	---
halogeton	HAGL	2%	---	---
mustard	BRASS	1%	2%	1%
winterfat	KRLA2	95%	60-70%	70%
bud sagebrush	PIDE4	trace	3%	---
Douglas' rabbitbrush	CHVI8	trace	3%	---

Similarity Index: 73% (late seral stage based on production – mid seral stage based on composition) Trend was recorded as not apparent.

Overall Production: 247 pounds per acre (air dry wt.) Normal year production is about 350 pounds per acre. Unfavorable year production is about 200 pounds per acre.

Potential vegetative production is about 20% grasses, 5% forbs, and 75% shrubs.

Current composition is about 2% grasses, 0% forbs, 95% shrubs.

Plant community dynamics: As ecological condition declines, bottlebrush squirreltail and shadscale increase, while winterfat and Indian ricegrass decrease. With further site degradation, cheatgrass, halogeton and annual mustards invade the interspace areas between shrubs. These annual species, particularly halogeton, typically become dominant on disturbed sites. The site is easily eroded and gullies may form which can interrupt overland flow patterns. As natural overflow patterns are severely disrupted or concentrated flow channels develop, the site may degrade into the Silt Flat (028BY056NV) ecological site.

*from Ecological Site Description

Table 4.5-3.Total Annual Yield and Composition of Duckwater Allotment, Green Springs Use Area Key Areas

Key Area: DW-46
Date: 06/3/2008
Range Site: Silty 8-10" P.Z. (028BY013NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
bottlebrush squirreltail	ELEL5	0.5%	5-10%	1%
winterfat	KRLA2	99.5%	40-50%	50%

Similarity Index: 51% (late seral stage based on production, mid seral stagebased on composition). Trend was recorded as not apparent.
Overall Production: 395 pounds per acre (air dry wt.) Normal year production is about 500 pounds per acre. Unfavorable year production is about 350 pounds per acre.
Potential vegetative composition is about 30% grasses, 5% forbs, and 65% shrubs.
Current composition is about 1% grasses, 0% forbs, and 99% shrubs.
Plant community dynamics: As ecological condition declines, bottlebrush squirreltail and shadscale increase as winterfat and Indian ricegrass decrease. With further site deterioration, cheatgrass, halogeton and annual mustards invade the interspace areas between shrub species. On heavily disturbed sites, these annual species, particularly halogeton, become dominant. Soils of this site are easily eroded and gullies often form, interrupting the overland flow patterns. As gullies begin to form, this site grades into the Silty Plain (028BY054NV) or Loamy Fan 8-12" PZ (028BY045NV) site.
*from Ecological Site Description

Table 4.5-4.Total Annual Yield and Composition of Duckwater Allotment, Green Springs Use Area Key Areas

Key Area: DW-48
Date: 06/3/2008
Range Site: Coarse Silty 6-8" P.Z. (028BY084NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
bottlebrush squirreltail	ELEL5	1%	2-5%	1%
Indian ricegrass	ACHY	trace	40-50%	---
bluegrass	POA	1%	2%	1%
winterfat	KRLA2	64%	20-30%	30%
Douglas' rabbitbrush	CHVI8	29%	3%	3%
bud sagebrush	PIDE4	5%	5-15%	5%

Similarity Index: 40% (mid seral stage). Apparent trend is static. Trend was recorded as not apparent.
Overall Production: 443 pounds per acre (air dry wt.) Normal year production is about 700 pounds per acre. Unfavorable year production is about 400 pounds per acre.
Potential vegetative composition is about 55% grasses, 10% forbs, and 35% shrubs.
Current composition is about 2% grasses, 0% forbs, and 98% shrubs.
Plant community dynamics: As ecological condition declines, Douglas' rabbitbrush and shadscale increase, while winterfat and Indian ricegrass decrease. With further site degradation, cheatgrass, halogeton and annual mustards invade the interspace areas between shrub species. On heavily disturbed sites, annual species, particularly halogeton, become dominant. Following wildfire, particularly through communities in lower ecological condition, snakeweed often becomes the dominant plant.
*from Ecological Site Description

Table 4.5-5.Total Annual Yield and Composition of Duckwater Allotment, Green Springs Use Area Key Areas

Key Area: DW-51
Date: 06/2/2008
Range Site: Silty 8-10" P.Z. (028BY013NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
bottlebrush squirreltail	ELEL5	3%	5-10%	3%
Indian ricegrass	ACHY	1%	15-25%	1%
winterfat	KRLA2	89%	40-50%	50%
Douglas' rabbitbrush	CHVI8	2%	2%	2%
bud sagebrush	PIDE4	6%	2-8%	6%

Similarity Index: 62% (late seral stage based on production – mid seral stage based on composition). Apparent trend was recorded as declining.

Overall Production: 404 pounds per acre (air dry wt.) Normal year production is about 500 pounds per acre. Unfavorable year production is about 350 pounds per acre.

Potential vegetative composition is about 30% grasses, 5% forbs, and 65% shrubs.

Current composition is about 4% grasses, 0% forbs, and 97% shrubs.

Plant community dynamics: As ecological condition declines, bottlebrush squirreltail and shadscale increase as winterfat and Indian ricegrass decrease. With further site deterioration, cheatgrass, halogeton and annual mustards invade the interspace areas between shrub species. On heavily disturbed sites, these annual species, particularly halogeton, become dominant. Soils of this site are easily eroded and gullies often form, interrupting the overland flow patterns. As gullies begin to form, this site grades into the Silty Plain (028BY054NV) or Loamy Fan 8-12" PZ (028BY045NV) site.

*from Ecological Site Description

4.6 Frequency Trend Data

Several years of frequency trend data has been gathered for Key Area DW-01 in the Green Springs Area. This data is summarized as follows:

Table 4.6-1 - Frequency Trend Data at DW-01

Plant Species	*1989*	*1991*	*1992*	*1994*	*1999*	*2008*
Indian ricegrass	25%	20%	25%	35%	43%	15%
Bottlebrush Squirreltail	8%	4%	2%	20%	46%	2%
Sandberg's Bluegrass	_	_	_	4%	6%	13%
Cheatgrass	86%	_	_	_	53%	_
Halogeton	_	_	_	35%	_	_
Mustard	_	_	17%	5%	6%	_
Winterfat 3"	27%	14%	14%	13%	20%	19%
Winterfat 10"	_	67%	61%	62%	73%	66%
Bud sagebrush	4%	4%	6%	4%	8%	20%

Based on the above results there is some indication that bluegrass and bud sagebrush have increased at DW-01.

Frequency trend data gathered at DW-18 in the Green Springs Use Area is summarized as follows:

Table 4.6-2 - Frequency Trend Data at DW-18

Plant Species	*1993*	*1999*	*2008*
Indian ricegrass	_	_	_
Bottlebrush Squirreltail	47%	76%	33%
Sandberg's Bluegrass	_	_	1%
Globemallow	1%	1%	_
Cheatgrass	_	5%	1%
Halogeton	81%	_	8%
Mustard	10%	1%	_
Winterfat	52%	46%	60%
Rabbitbrush	_	_	1%
Bud sagebrush	4%	4%	20%

Based on the above results there is some indication that bud sagebrush has increased at DW-18.

4.7 Drought Indicator Checklist

Drought Indicator Checklists were completed in the Green Springs Use Area on August 23, 2000 and June 12, 2002.

The August 2000 Checklist at DW-46 (winterfat dominant salt desert shrub) showed that plant vigor; leader growth; and physical condition of wild horses, wildlife and livestock were normal. Current year's use to date of winterfat was 48% while that of squirreltail was 66% (heavy). Winterfat inside the use cage was of good vigor to 14" tall. Rainfall for the year was below normal.

In June 2002, at DW-01, forage vigor was below average to average. Shrub leader growth was average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was below normal. Current year's use to date of winterfat was 48% while that of ricegrass was 84% (severe). Ricegrass was observed to be of poor vigor. 59 wild horses were observed in northwest green Springs Valley.

In June 2002, at DW-50, forage vigor was below average to average. Shrub leader growth was average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was below normal. Current year's use to date of winterfat was 37% while that of ricegrass was 64%. Ricegrass was observed to be of poor vigor & not very productive. Green leaves averaged 2". The use cage had been torn out by wild horses. Cheatgrass & halogeton were common to the area.

4.8 Observed Apparent Trend

DW-01

In August 1994 observed apparent trend was downward (16) at DW-01. Ricegrass was used 76% thus far in the grazing year. Abundant fresh cow sign was present. Much more cow sign than horse sign was indicated. Sandberg's bluegrass was abundant in the area, but not in the area of the transect.

DW-18

In July 1993 observed apparent trend was downward (16) at DW-18. There was an abundance of halogeton & halogeton seedlings. Squirreltail was used low heavy (about 65%) & was of poor vigor. Winterfat was in fair shape. Both cattle & wild horse sign was present.

In March 1997 observed apparent trend was downward (16) at DW-18. Some young seedlings of squirreltail were present. Mustard skeletons were abundant. Grazing year 1996 utilization of key species was severe.

5. DUCKWATER ALLOTMENT, LITTLE SMOKEY VALLEY USE AREA

5.1 Key Areas and Rangeland Ecological Sites

Table 5.1-1 Duckwater Allotment, Little Smoky Valley Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-15	T15N R53E S34 NW1/4	Silty 8-10" P.Z. (028BY013NV)	Winterfat Indian ricegrass	3091-Univega-Clowfin-Molion Association
DW-19	T15N R53E S24 SW1/4	Silty 8-10" P.Z. (028BY013NV)	Winterfat Indian ricegrass	3091-Univega-Clowfin-Molion Association
DW-55	T15N R52E S26 NW1/4	Silty 8-10" P.Z. (028BY013NV)	Winterfat Indian ricegrass	3970-Linoyer-Rebel Association

* HCPC = Historic climax plant community

** Key Areas DW-56 & DW-57 also occur in the south portion of the Little Smoky Valley Use Area, but have thus far been studied very infrequently.

Key Area DW-15 is located in winterfat dominated salt desert shrub range on the east side of Little Smoky Valley.

Key Area DW-19 is located in winterfat dominated salt desert shrub range in the northeast portion of Little Smoky Valley southeast of Cow Well.
Study site SS-1 is located in small rabbitbrush dominated salt desert shrub range on the east side of Little Smoky Valley.
Study Site SS-2 is located in typical black sagebrush range amidst widely scattered juniper trees about 2 miles upslope from Key Area DW-15, on the east side of Little Smoky Valley. Study Site SS-3 is located in typical black sagebrush range mid slope on a piedmont bench on the east side of the valley.
Study site SS-4 is located in a sickle saltbush dominated area of salt desert shrub range in the valley bottom south of a 40 acre parcel of private land.

5.2 Licensed Livestock Use

5.2-1. Paris Livestock

Paris Livestock licenses sheep use for the allotment as a whole. From 1994-1998, Paris Livestock drew maps of his sheep trailing areas in the allotment south in January and north in March. Maps have also been submitted for 2008 and 2009 to date. In January 2009 a 900 head yearling ewe band made use in Little Smoky Valley, in the northeast portion of the valley. In January 2008 a 1000 head band of young sheep also made use in the northeast portion of the valley.

Use varied in the Little Smoky Valley Use Area from 1994 – 1998 (5 years) as follows:

In January, 1998 through March 1998 two 2250 head sheep bands made use in the east portion of the valley.
In January 1997 through March 1997 two 2000 head bands made use in the east portion of the valley.
In March 1996 two 2000 head bands made use on their way north in the east portion of the valley.
In January 1995 one 900 head band and one 2000 head band made brief use of the southeast portion of the valley on their way south.
In March 1995 two 2000 head bands made use in the east portion of the valley.
In January 1994 no use was made in the area. In March 1994 one 2000 head band made use in the southeast portion of the valley.

5.2-2. Thomas and Ellen Gardner

The sheep (1425) began grazing this use area in mid December 2008 and are expected to graze the area until the end of January 2009, for a total of 450 AUMs.

Little use was made in this use area by sheep during the winter 2008. 1325 sheep grazed about 5 days in January and five days in March, for a total of 87 active AUMs.

During the winter of 2007, up to 1860 sheep used this area from 12/28/2006 to 02/15/2007, for a total of 598 AUMs.

During the winter of 2006, 1000 sheep were licensed in the Duckwater Allotment from 11/1/2005 to 02/28/2006, for 789 AUMs while 800 sheep were licensed from 12/15/2005 to 2/20/2006 for 358 AUMs. About half this use was made in Little Smoky Valley, or approximately 574 AUMs.

Prior to the winter of 2006, this sheep permit was not activated in this area since about 1995.

5.2-3. Vince Ferreira

Vince Ferreira is permitted for 414 cattle from 10/01 through 03/31 for 2,481 active AUMs in the Little Smoky Valley. This permit has changed hands several times since Russell Ranches folded in about 1995. Metropolitan Life Insurance Company, then Gus Rapone, then Luther Wise then Dave and Linda Woolfolk each held this permit for short intervals. This cattle permit is administered and billed from the Battle Mountain BLM Field Office. The Ely BLM monitors the Little Smoky Valley Use Area, tours with grazing permittees, and coordinates with

Battle Mountain on annual stocking levels and season of use. Randy Stowell ran this permit on the Luther Wise LLC for one year (2001 – 2002). This permit was in total non-use from 1996 through the fall of 2002 (until January 2003). BLM has worked with the different permit holders on an annual basis to keep the cattle numbers around 200 head or less for the winter grazing period.

Randy Stowell's actual cattle use in the Little Smoky Valley Use Area is as follows:

Use Area/Grazing Year	Cattle Numbers	Grazing Season	AUMs	Comments
Little Smoky Valley/ 2001	150 200	11/01 – 12/31/2001 1/1/2002 - 2/28/2002	301 388	
Little Smoky Valley/ 2002	200	3/1/2002 – 3/31/2002	204	

Dave Woolfolk's licensed cattle use in the Little Smoky Valley Use Area is as follows:

Use Area/Grazing Year	Cattle Numbers	Grazing Season	AUMs	Comments
Little Smoky Valley/ 2002	200	1/23/2003 – 2/28/2003	243	
Little Smoky Valley/ 2003	200 200	3/1/2003 – 4/7/2003 10/15/2003 – 2/28/2004	250 901	
Little Smoky Valley/ 2004	200 400* 120	3/1/2004 – 4/18/2004 11/15/2004 – 1/31/2005 2/1/2005 – 2/28/2005	322 1026 110	Actual use from 11/15/2004 - 1/31/2005 = 308 AUMs.
Little Smoky Valley/ 2005	120 300*	3/1/2005 – 3/31/2005 11/1/2005 – 2/28/2006	122 1184	Actual use from 11/1/2005 - 2/28/2006 = 710 AUMs.

* Records of Conversation and field tour records show actual cattle use for the period 11/15/04 through 1/31/2005 was 120 cattle, or 308 AUMs.
Actual cattle use for the period 11/1/2005 through 2/28/2006 was 180 cattle, or 710 AUMs.

Vince Ferreira's actual cattle use in the Little Smoky Valley Use Area is as follows:

Use Area/Grazing Year	Cattle Numbers	Grazing Season	AUMs	Comments
Little Smoky Valley/ 2006	Variable 35 to 222	10/15 – 02/28	849	Actual use from 10/15/2006 - 2/28/2007 = 581 AUMs.
Little Smoky Valley/ 2007	222 60 to 80	3/1/2007 – 3/31/2007 10/1/2007 – 2/28/2008	226 370	
Little Smoky Valley/ 2008	80 60 103	3/1/2008 – 3/31/2008 11/1/2008 – 12/14/2008 12/15/2008 –	82 87	

5.3 Utilization

On March 12, 2009 eight key forage plant method (KFPM) utilization transects were read for use by herbivores for the 2008 grazing year ending February 28. Transects were read at Key Areas DW-19, DW-15, DW-55 and other Study Sites throughout the Little Smoky Valley area that were typical of the plant communities and grazing patterns in the use area. Photographs were taken. Use of winterfat ranged from 70% to 90% (7 transects) and averaged 85% (severe)

while use of Indian ricegrass ranged from 74% to 86% (5 transects) and averaged 79% (heavy). Use of sickle saltbush was 70% east of Arambel Well. Use of four wing saltbush was 82% in Cockalorum Wash and 84% (severe) west of Arambell Well. Range notes recorded on the utilization forms included the following:

A summary of field notes indicates use was by cows and wild horses. Dried halogeton was abundant in the area. Areas of severely delpeted range were noted. Slight use of black sagebrush by sheep was noted.

On September 17, 2008 six key forage plant method (KFPM) utilization transects were read for use by herbivores up to date. Transects were read at Key Areas DW-19, DW-15, and other Study Sites throughout the Little Smoky Valley area that were typical of the plant communities and grazing patterns in the use area. Photographs were taken. Use of winterfat ranged from 36% to 78% and averaged 48% (moderate) while use of Indian ricegrass ranged from 35% to 80% and averaged 54% (moderate). Use of sickle saltbush was 44% near private ground in the valley bottom. Photographs were taken. Range notes recorded on the utilization forms included the following:

Winterfat in the use cage at Key Area DW-19 was of fair vigor to 5" tall. Ricegrass in the cage was also of good cured vigor to 4.5" tall. Bud sagebrush appears to be increasing in this area. Both cow & wild horse droppings and tracks were present from the grazing year. At Study Site #1 Indian ricegrass was common in an area of small rabbitbrush dominated salt desert shrub range. At Key Area DW-15 winterfat inside the use cage was of fair cured vigor to 6" tall, not that brittle. Ricegrass inside the cage was short, with cured leaves to 4". At Study Site #2, very dry conditions were noted with many dead perennial grass crowns present. The use in this area was all wild horses this last year.. 80% use on ricegrass % 78% use of winterfat. A walking transect through hills in the area indicated heavy & severe use of Indian ricegrass by wild horses for the year. At Study Site #4 winterfat & sickle saltbush were in typical fall dry vigor. Use in this area was by both cattle in early spring & wild horses the rest of the year.

On April 26, 2007 eight KFPM utilization transects were conducted in Little Smoky Valley for use on current year's growth of key species. Transects were read at Key Areas DW-19, DW-15, and at six other locations typical of the plant communities and grazing patterns in the use area. Use of ricegrass ranged from 9% to 21% and averaged 14% (slight) for eight transects. Use of winterfat ranged from 12 to 21% and averaged 16% (slight) for four transects. Use of needleandthread towards Moody Mountain was 10%. Use of bottlebrush squirreltail at transect #3 was 5%. Range notes recorded on the utilization forms included the following:

At DW-19 less than 2% of budsage had been browsed. Round "pockets" of halogeton were present averaging 10' diameter. No cheatgrass was present. Black sagebrush in the area was of good vigor & used light or less over winter by sheep. A half mile from DW-19 in rabbitbrush dominant range fresh wild horse sign was present. Wild horses have been making use of green rabbitbrush. 60 wild horses were observed in the area. Towards Moody Mountain in sagebrush range no cheatgrass, halogeton, or mustard was present. Mostly wild horses have been using the area. Galleta grass was observed to be used moderate for the 2006 grazing year. At DW-15 an area of winterfat is mixed with halogeton & rabbitbrush. No use of new bud sagebrush growth was noted. At transect #6 in sagebrush range use was heavy to severe for the 2006 grazing year. Little to no stubble height left on native bunchgrasses. At the old key area in Snowball Wash very dry conditions were prevalent. Topsoil is eroded & heavily to severely grazed winterfat (2006) was not greening up much yet. Plants pedestalled, cured halogeton present. Mostly wild horse use. About 0.5 miles east of Summit Station Water Haul #1, no invasive annuals were present. Native grasses were infrequent. A sandy soil type was present. Year long use for the 2006 grazing year was moderate to heavy. At 0.8 miles east of Summit Station Water Haul # 2, in the Dry lake Hills, cow + wild horse use was observed. No invasive species were present. Galleta grass was already greening up on a south facing slope, which was unusual for a summer grass species. Year long use on galleta for the 2006 year was moderate while that for ricegrass was moderate or less. Towards Pritchard Station in Wyoming sage range use on ricegrass for the 2006 year was moderate to heavy. Native perennial grass was infrequent. No invasive species were present.

On March 12, 2007 three KFPM transects was read with the grazing permittee at Key Areas DW-19, DW-15, and DW-55 for year long use during the 2006 grazing year. Photographs were taken. Use of winterfat ranged from 42% to 81% and averaged 59% (moderate) for three transects. The severe use of winterfat occurred in Cockalorum Wash. Use of Indian ricegrass ranged from 51% to 70% and averaged 60% (moderate) for three transects. Range notes recorded on the utilization form included the following:

At DW-19, cured winterfat inside the use cage in good dormant vigor to about 7" tall. Orhy dense growth to 5" tall. At DW-15, winterfat in the use cage was of good dormant vigor to 6" tall. Ricegrass also good cured vigor.

On October 7, 2004 nine key forage plant method (KFPM) utilization transects were read for use to date in Little Smoky Valley by herbivores, at Key Areas DW-15, DW-19 and other areas typical of the grazing patterns and plant communities of the use area. At Key Area DW-15, use of winterfat was 24% and use of Indian ricegrass was 21%. At Key Area DW-19, use of winterfat was 23% and use of ricegrass was 23%. In the valley bottom, use of sickle saltbush was 24%. Overall, use of ricegrass ranged from 21% to 72%. Four transects were in the heavy use class. Use of needlegrass was 82% (severe) near Moody Mountain. Range notes recorded on the utilization forms included the following:

Winterfat at key Area DW-15 was very dry & brittle. Cured ricegrass plants small, ave. 3" tall. Winterfat/halogeton range about half/half. Winterfat in the use cage of fair vigor ave. 5" tall, ricegrass in the cage of fair vigor plants average 3" tall. At Key Area DW-19 winterfat was again dry & brittle. Photo taken. Winterfat in the use cage of fair vigor averaging 4" tall. Orhy of fair cured vigor averaging about 6" tall. In the sickle saltbush/halogeton area near the old homestead shrubs average about 1 foot tall & are woody, without much green leaf. Near the Summit Station water hauls ricegrass & squirreltail were very infrequent and the range was a monoculture of Wyoming sage and rabbitbrush. No young plants were observed and little cured forage was available. Halogeton & mustard were common in the area. Cheatgrass grew on a south facing slope in volcanic rock. Average stubble height of ricegrass in the Dry Lake Hills was ½ inch. Ricegrass & squirreltail were again very infrequent on the east side of the valley near the tire water haul. There was very little available forage. Near Moody Mountain, perennial grasses had been hammered by cows and wild horses. Severe use of needleandthread.

On April 27, 2004 seven key forage plant method (KFPM) utilization transects were read for use to date by cattle, wild horses, and other herbivores. Transects were read at Key Areas DW-55, DW-15, DW-19, and other areas typical of the plant communities and grazing patterns in the use area. Use of Indian ricegrass ranged from 29% to 64% and averaged 47% (moderate) for six transects. Use of winterfat ranged from 19% to 44% and averaged 36% (light) for four transects. Range notes recorded on the utilization forms included the following:

At DW-55 in Cockalorum Wash halogeton was half the annual production of the plant community. Perennial grasses were small, droughty, with dead centers. A silty pedestalled site. Up Cockalorum Wash 1 mile poor vigor grass was again present on a silty site where hagl was half the annual production. East of the Summit Station water haul spiny hopsage was present on a hill. A fair component of perennial grass was noted with Wyoming sagebrush. Galleta grass also present. Cows or wild horses use of rabbitbrush noted. A fair galleta grass component was noted in the dry lake hills. On the east side of the valley near the tire water haul a very limited amont of perennial grass was noted. At DW-15 fairly good vigor of ricegrass & winterfat was noted & the permittee & range specialist agreed a good place to graze this coming winter.

On April 8, 2003 six key forage plant method (KFPM) utilization transects were read for use during the 2002 grazing year by cattle, wild horses, and other herbivores. Transects were read at Key Areas DW-15, DW-19, and other areas typical of the plant communities and grazing

patterns in the use area. Use of Indian ricegrass ranged from 58% to 84% and averaged 74% (heavy) for six transects. Use of winterfat ranged from 28% to 56% and averaged 48% (moderate) for six transects. Range notes recorded on the utilization forms included the following:

Both wild horses and cattle used the range in the area of DW-15 during the winter. The current year's growth of bud sagebrush currently not being used. Cowboys are working cattle at Cow Well this morning. At transect #2, halogeton was abundant in a winterfat meadow. Indian ricegrass was very infrequent in the area. Bud sagebrush was not being used. At transect #3, Orhy was of poor vigor, drought stressed, or dead. Halogeton & mustard were abundant. At DW-19 ricegrass inside the use cage was of fair vigor with 2002 cured growth averaging about 4" leaves. Ricegrass in the general range was drought stressed with green up only averaging about 1" thus far. Use of new green growth of rabbitbrush noted in the area. At transect #5 ricegrass was small & extremely drought stressed, of poor vigor or dead. The range needs rest.

On April 29, 2003 seven key forage plant method (KFPM) utilization transects were read for year long use by cattle, wild horses, and other herbivores during the 2002 grazing year that ended February 28. Cattle grazing occurred in the area through March and a good portion of April. Transects were read at Key Areas DW-55, 56, and 57 and other areas throughout the Little Smoky Valley area that were typical of the plant communities and grazing patterns in the use area. Use of winterfat ranged from 46% to 88% and averaged 71% (heavy) while use of Indian ricegrass ranged from 37% to 82% and averaged 59% (moderate). Photographs were taken. Range notes recorded on the utilization forms included the following:

At Key Area DW-55, ricegrass inside the use cage was of poor vigor, last year's growth sparse, short leaves average 2". Very little green up yet for current year. Winterfat inside the use cage of fair vigor, plants average 6" tall. Current 2003 year growth about 1.5". Halogeton is abundant in the area. Area well worked by cattle this winter/spring – many tracks. Plant pedestalling is common. At 1.2 miles west into Cockalorum Wash a "nuked" area of historical negative impacts. Lots of buttercup burweed already greening up. Cattle did a lot of trailing through here this last winter/spring. In a Wyoming sagebrush draw southwest of Arambel Well winterfat had the look of overall heavy use. Most ricegrass plants of fair vigor at best, with most cured stubble shoots not greening. In a sagebrush draw 2.5 miles south of Cockalorum Wash a degraded sagebrush draw was present with pockets dominated by halogeton. Native perennial bunchgrasseswere of fair vigor at best with many dead crowns. Lots of cow use. At Key Area DW-57 south of Big Fault Wash in the park Range WSA ricegrass & winterfat in the use cage were of good vigor following many years rest (cage not moved in several years). This is mixed Wyoming/black sagebrush range. Orhy used 37% winterfat used 46%. Galleta grass in the area used light or less. Cattle & wild horse use. At Key Area DW-56 on the east side of the north Park Range winterfat in the use cage was of fair vigor to 5" tall after several years rest. Ricegrass in the cage was of fair vigor to 7" tall, starting to green. An abundance of wild horse sign was present. Also a little cow use this last year.

On April 24, 2002 twelve key forage plant method (KFPM) utilization transects were read for year long use by cattle, wild horses, and other herbivores during the 2001 grazing year that ended February 28. Cattle grazing occurred in the area through March. Transects were first read at Key Area DW-55 and other areas near Arambel Well and Cockalorum Wash that are typical of the plant communities and grazing patterns on the west side of the valley. Transects were next read at Key Area DW-19, DW-15, and other areas on the east side of the valley typical of the plant communities and grazing patterns. Use of winterfat ranged from 6% to 68% and averaged 44% (moderate) while use of Indian ricegrass ranged from 6% to 84% and averaged 51% (heavy). Use of sickle saltbush in the valley bottom was 5%. Photographs were taken. Range notes recorded on the utilization forms included the following:

At Key Area DW-55, winterfat inside the use cage was of good vigor to 14" tall. Indian ricegrass inside the cage was also of good vigor to 16" tall with seed produced during 2001. New green growth of Orhy leaves to 6". Some ungrazed bottlebrush squirreltail was present in the area. Most use by cattle. Recent wild horse droppings were present. Key forage plants were pedestalled and halogeton was abundant in the area, estimated to be producing 50% of the current annual growth of the plant community. Halogeton was also common in the range at transect #2 1.5 miles further south. A fair bottlebrush squirreltail component was growing with winterfat. Again, mostly cow use, with recent wild horse sign present. It was observed that mush of the black sagebrush range on the west side of the valley does not have much of an herbaceous understory or a perennial native grass component. At transect #3 four wing saltbush was present & used moderately or less, by cows. A walk was taken to the SW of the county road and a fair & vigorous component of Orhy was located in black sagebrush range used 10% or less for the year. In a nearby draw Indian ricegrass & needlegrass were used moderately. Up Cockalorum Wash heavy cow droppings were present. A fair amount of bottlebrush squirreltail was present indicating a downward trend. Use of a little basin wild rye present was moderate or less. Much of the nearby range was totally degraded to a mustard/halogeton area. Cows hit this hard. The range immediately east of Arambel Well was all degraded from severe historical livestock use & drought. Use of four wing saltbush in the area was moderate or less. Many 4 wing shrubs were dead or decadent. A lot of deep cow tracks from winter. Mainly cow use out east of Arambel Well.

At Key Area DW-15 winterfat inside the use cage of good vigor to 7" tall. Ricegrass in the cage of good vigor to 8" tall and producing lots of seed. Only an occasional cow or horse got this way – 6% use of eula, 21% use of orhy. In the saltbush plant community in the valley bottom, a few cows visited during the winter. There is an abundance of rabbitbrush dominated salt desert shrub range in the area, with an improving ricegrass component. An abundance of halogeton & burweed was present. At an area southwest of Cow Well the range had the appearance of slight or less use. Cured Orhy shows good current production from storms that passed through the area in March of 2001. At Key Area DW-19 moderate cow droppings present. Winterfat in the use cage of good vigor to 16" tall. Orhy also good vigor to 12" tall. Pete Paris trailed north through the east side of little Smoky Valley with a band of 1500 sheep this march/April.

5.4 Line Intercept Cover Studies

Vegetation cover data was gathered in the Little Smoky Valley Use Area on September 17, 2008. This study is called the Line Intercept Vegetation Cover Study. The results are presented in the following table:

Table 5.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – Little Smoky Valley Use Area

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration
DW-15/ 9/17/08	N: 4332208 E: 586801	28BY013NV Silty 8-10”	8.51 feet/ 3.30 feet Potential 15 – 20 feet	Black biotic crust present on soil surface. Green lichen on soil surface. Stable gravel soil.	No excess trampling or compaction. No cheatgrass. Halogeton present.
DW-19/ 9/17/08	N: 4333549 E: 589614	28BY013NV Silty 8-10”	13.69 feet/ 0.98 feet Potential 15-20 feet	Black biotic crusts common on soil surface. Loose green lichen common on soil surface	No excess trampling or compaction. No cheatgrass present.
SS-1/ 9/17/08	N: 4332834 E: 588375	28BY013NV Silty 8-10”	12.89 feet/ 2.42 feet Potential 15-20 feet	Black biotic crusts common on soil surface. Stable gravel soil.	No excess surface compaction or trampling. No brte present. Halogeton common to area.
SS-2/ 9/17/08	N: 4328180 E: 588708	28BY011NV Shallow Calcareous Loam 8-10”	15.67 feet/ 4.96 feet Potential 15-20 feet		No excess trampling or compaction. Wild horse use. No cheatgrass present. Halogeton < 1% of current annual production.
SS-3/ 9/17/08	N: 4325341 E: 585066	29XY008NV Shallow Calcareous Loam 8-12”	18.79 feet/ 5.35 feet Potential 20-30 feet	Black or white biotic crust common on soil surface. Loose green lichen present. Yellow lichen on rocks.	No excess trampling or compaction. No cheatgrass. No halogeton.
SS-4/ 9/17/08	N: 4333036 E: 585011	29XY046NV Sandy loam 5-8”	7.67 feet/ 8.48 feet Potential 15 - 25 feet	No biotic crust. Silt clay type soil.	No excess trampling or surface compaction. No cheatgrass. Halogeton present.

5.4-2. Composition by Cover

Species composition by cover for Key Areas & Study Sites in the Little Smoky Valley Use Area is as follows:

DW-15		***DW-19***		***Study Site 1***	
Winterfat	93%	Winterfat	31%	Rabbitbrush	72%
Bud sagebrush	5%	Bud sagebrush	28%	Winterfat	20%
Indian ricegrass	2%	Black sagebrush	13%	Bud sagebrush	5%
		Rabbitbrush	23%	Indian ricegrass	1%
98% shrubs		Indian ricegrass	4%	Squirreltail	1%
		Halogeton	1%	Prickly gilia	1%
		Squirreltail	1%		
				97% shrubs	
		95% shrubs			
Study Site 2		***Study Site 3***		***Study Site 4***	
Black sagebrush	87%	Black sagebrush	90%	Sickle saltbush	66%
Bluegrass	5%	Rabbitbrush	8%	Winterfat	34%
Rabbitbrush	4%	Indian ricegrass	1%		
Bud sagebrush	1%	Needlegrass	1%	100% shrubs	
Indian ricegrass	1%				
Phlox	2%	98% shrubs			
91% shrubs					

5.5 Ecological Condition Information Including Similarity Index

Ecological condition studies have not been completed at key areas or study sites in the Little Smoky Valley Use Area. This use area has not been identified as a priority area to monitor within the landscape.

5.6 Frequency Trend – Little Smoky Valley Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-19	1994/1999	More bottlebrush squirreltail Less halogeton	Static

Key Area	Years Read	Significant Changes	Indicated Trend
DW-15	1993/1999	More Indian ricegrass Less halogeton Less winterfat More bud sagebrush	Static

5.7 Drought Indicator Checklist – Little Smoky Valley Use Area

A drought check was conducted at Key Area DW-19 on September 26, 2007. Several kinds of drought indicators were observed. Forage vigor of the key forage plants winterfat and Indian ricegrass was below average to average. Leader growth of shrubs was also below average to average. The average height of current year's growth of winterfat was 3 to 4" and ricegrass 1 to 2". Leaves of deciduous shrubs were below average. Utilization of the current year's growth

was low moderate to light. Rainfall for the current year was below normal. The physical condition of wild horses was normal. Notes indicated the range specialist recommended on more year of drought & BLM should implement a closure of Little Smoky Valley.

A drought check was also conducted at Key Area DW-55 on September 26, 2007. Forage vigor was below average. Leader growth of shrubs was also below average. The average height of the current year's growth of winterfat was 1". Leaves of deciduous shrubs were lost or dead. Utilization of the current year's growth of winterfat was heavy to severe. Rainfall for the current year was below normal. The physical condition of wild horses was normal. Notes indicated the range specialist recommended on more year of drought & BLM should implement a closure of Little Smoky Valley.

A drought check was also conducted at a study site in a winterfat dominated area of salt desert shrub range in Little Smoky Valley on April 26, 2001. Forage vigor was below average to average. Shrub leader growth was below average to average. The average height of the current year's growth of winterfat was 1.5" and ricegrass 2". The use of the previous year's growth of winterfat was 84% and Indian ricegrass 76%. No water was available in the area (normal). It was observed that Wyoming sagebrush was encroaching on the winterfat meadow, which has been grazed heavily to severely by wild horses over a period of many years.

Drought checks were also completed in Little Smoky Valley on May 23, 2001. At Key Area DW-19 east of Cow Well, forage vigor and shrub leader growth were above average. The average height of the current year's growth of winterfat was 7" and ricegrass 8". Use of the current year's growth of both species was slight or less. Rainfall was normal for the year. Water source availability was normal. The reservoirs in the valley bottom were full. A super abundance of mustard was noted. Winterfat was very productive. The recommendation was to reopen the drought closure. At Key Area DW-15, observations of drought indicators were similar to those at DW-19. On the west side of the valley, at key Area DW-55, similar conditions. Reopen the drought closure.

A drought check was conducted at a study site near Cow Well in the northeast portion of the use area on 12/6/2000. Forage vigor and shrub leader growth were average. The average height of the current year's growth of winterfat was 5 -6". Use of the current year's growth of winterfat was 22% and ricegrass 31%. Rainfall for the current year was below normal. Water source availability was normal.

Photos were taken of springs in the park Range WSA in association with drought monitoring of the area on August 3, 2000. Bassit Spring was in good condition with utilization of combined riparian grasses less than 50%. Lots of wild iris was present. The seeps at upper Bassit Spring were in good condition. Tank Spring was in fair to good shape. Wild horses were using both areas.

5.8 Observed Apparent Trend

In September of 1994, observed apparent trend was static (18) at Key Area DW-19. In June 1997, trend was also static (20). In July 1999, trend was also static (19).

Range field notes indicate the following:

Notes from 1994 indicate the vigor of Indian ricegrass and winterfat in the use cage was of poor vigor due to a dry year. Winterfat to 5" tall, ricegrass to 3" tall. The soil was observed as stable & lots of halogeton was present in the area. Use of winterfat was estimated to be 35% to date & use of ricegrass was estimated to be 65% to date. Notes from 1997 indicate winterfat in better condition than 3 years ago, more vigorous, producing numerous seedheads. Still an abundance of halogeton. Mustard common this year. Use of winterfat through June 17 was estimated to be 18%, primarily by wild horses. Notes from 1999 indicate winterfat in fair to good vigor. Indian ricegrass of low production and already used > 70% for the grazing year. Halogeton is abundant & vigorous this year. Far more halogeton seedlings than winterfat.

In July, 1993 observed apparent trend was downward (15) at Key Area DW-15. There were no general comments on the trend form.

5.9 Use Patterns – Little Smoky Valley Use Area

Due to limted water availability, cattle use occurs in certain areas of the Little Smoky Valley Use Area. The cattle grazing permit was in total non- use from 1996 through the fall of 2002 (seven years). During the fall/winter grazing period, cattle use in the last eight years since 2003 has occurred at the following locations:

1. Near Cow Well in the northeast potion of the use area (T. 15N., R. 53E., Sec. 23).
2. Near Arambel Well in the west portion of the use area (T. 15N., R. 52E., Sec 35).
3. Near the Willow Creek Ranch (T. 14N., R. 52E., Sec. 19).
4. Near the Summit Station Water Hauls in the south portion of the use area (T. 12N., R. 53E., Sec. 8).
5. Near the rubber tire water haul on the east side of the valley (T. 131/2N., R. 57E., Sec. 27).

6. DUCKWATER ALLOTMENT, NORTH SAND SPRINGS VALLEY USE AREA

6.1 Key Areas and Rangeland Ecological Sites

Table 6.1-1 Duckwater Allotment, North Sand Springs Valley Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-21	T13N R55E S19 SE1/4	Loamy 8-10" P.Z. (028BY010NV)	Wyoming big sage Indian ricegrass needleandthread	3112-Cath-Portmount-Abgese association
DW-58	T13N R55E S30 NW1/4	Loamy 8-10" P.Z. (028BY010NV)	Wyoming big sage Indian ricegrass needleandthread	3112-Cath-Portmount-Abgese association
DW-59	T13N R55E S32 NW1/4 NE1/4	Loamy slope 8-10" P.Z. (029XY017NV)	Indian ricegrass bottlebrush squirreltail shadscale	620-Unsel-Broyles Association

* HCPC = Historic climax plant community

** Key Areas DW-60 & DW-61 also occur in the North Sand Springs Valley Use Area, but have thus far primarily just been used as areas to study utilization.

* Key area DW-21 is located in Wyoming big sagebrush range near Brown Summit.
Key Area DW-58 is located in Wyoming big sagebrush range south & west of brown Summit about 1 mile.
DW-59 is located in big sagebrush range in the Pancake Hills about 1.1 miles east from the tribal water haul tank.

6.2 Licensed Livestock Use

6.2-1. Duckwater Shoshone Tribe

The Tribe currently makes grazing use in the North Sand Springs Valley Use Area on odd years. Traditionally, cattle were turned out in spring and stayed through the summer months, some years as late as November. In more recent years, the Tribe has had difficulty keeping cattle in this area due to drought, the low productivity of the native range, and wild horse use. Cattle have drifted to the Pancake Use Area or returned to the reservation as early as May. Attempts by the Tribe and BLM to authorize short term water hauling locations to distribute livestock to new areas of the North Sand Springs Use Area have been largely unsuccessful. The North Sand Springs Area was closed to livestock grazing in August, 2000 and reopened to livestock grazing June 5, 2001. The Tribe licensed cattle use by pasture in 1998 and 1999. Otherwise, licensed use has occurred allotment wide. Use in 1998 and 1999 in the North Sand Springs Use Area is as follows:

Use Area/Grazing Year*	Cattle Numbers	Grazing Season	AUMs	Comments
North Sand Springs/ 1998	150 120	3/15/1998 – 5/15/1998 6/21/1998 – 11/24/1998	306 619	from 5/15 to 6/15 cows were on reservation pastures
North Sand Springs/ 1999	100 150 100	4/1/1999 – 4/30/1999 5/1/1999 – 6/30/1999 7/1/1999 – 10/31/1999	99 301 404	

*According to utilization forms dated 8/2/2000 no cows used the North Sand Springs Area in spring or summer of 2000, prior to the use area being closed due to drought.

6.2-2. Paris Livestock

Paris Livestock licenses sheep use for the allotment as a whole. From 1994-1998, Paris Livestock drew maps of his sheep trailing areas in the allotment south in January and north in March. Maps were also submitted for 2008 and 2009 to date. Sheep made use of this area from February through March 2008 and in January 2009. Normal use is about 6 to 8 days in the area south and 6 to 8 days in the area north.

Use varied in the North Sand Springs Valley Use Area from 1994 – 1998 (5 years) as follows:

In January, 1998 through March 1998 two 2250 head sheep bands made use in the area.
In January 1997 through March 1997 two 2000 head bands and an 850 head band made use in the area.
In March 1996 one 2000 head band and an 850 head yearling band made use on their way north in the area.
In January 1996 two 2000 head bands and an 850 head yearling band made use in the area on their way south.
In January 1995 one 900 head band and two 2000 head bands made use of the area on their way south.
In March 1995 two 2000 head bands made use in the area.
In January 1994 sheep made use while heading south in the eastern portion of the area. In March 1994 two 2000 head bands made use in the area.

6.3 Utilization

On June 12, 2008 a KFPM transect was read at Key Area DW-21 in North Sand Springs Valley for use to date by herbivores during the 2008 grazing year. Use of the key native perennial bunchgrass needleandthread was 34% (light) while use of black sagebrush was 5% (slight). Range notes recorded on the utilization form included the following:

Sheep sign from winter was present. Black sagebrush was in good vigor with half of the shrubs present producing 3-4" flowering stems.

On June 12, 2008 a KFPM transect was also read at Key Area DW-58 in North Sand Springs Valley for use to date by herbivores during the 2008 grazing year. Use of the key native perennial bunchgrass needleandthread was 34% (light).

On March 18, 2008 five key forage plant method (KFPM) utilization transects were read for year long use by cattle, sheep, wild horses, and other herbivores during the 2007 grazing year that ended February 28. Transects were read at Key Areas DW-21 and DW 58 – 61. Use of needleandthread ranged from 66% to 72% and averaged 69% (heavy), while use of Indian ricegrass ranged from 56% to 68% and averaged 63% (heavy). Use of winterfat was 50% at Key Area DW-61. Photographs were taken. Range notes recorded on the utilization forms included the following:

At Key Area DW-60, use was by wild horses, cattle, and sheep together. No cheatgrass was present. No p/j encroachment. Stco inside the use cage was of good cured vigor…cured leaves to 8" no green leaves yet. Did not make seed last year. At Key Area DW-21, Stco & Orhy in the use cage were of fair cured vigor at best. Did not make seed in 2007. Cured leaves to 5", ½" of new green leaves. No invasive species present. Sandy soil type. At Key Area DW-58 Stco beneath the mangled cage was of fair vigor. Cured leaves to 4", no seed. Galleta grass present used light or less. No cheatgrass present. At Key Area DW-61 in the winterfat stringer meadow southwest of the water haul it was observed that the site was transitioning to a Wyoming sagebrush dominant site. Bottlebrush squirreltail in the use cage was of good cured vigor to 10" tall. Green leaves beneath cured to 2". Both cow + wild horse use. No cheatgrass present. No halogeton. Mustard sprouts though. Tiny ricegrass plants present were of low vigor. At Key Area DW-59 Stco4 in the use cage was of fair cured vigor… no seed, no green beneath woolfy growth. Cage may not have been moved for 3 years or more. Cow use, wild horse use, + rabbit use.

On August 2, 2000 two KFPM utilization transects were conducted in North Sand Springs Valley for use to date by herbivores. The studies were in conjunction with drought monitoring. At Key Area DW-21 use of the key native bunchgrass needlegrass was 22%. At Key Area DW-61 use of winterfat was 17% while use of ricegrass was 58%. Range notes recorded on the utilization forms included the following:

At Key Area DW-21 green leaves of Stco inside the use cage average about 5". Little seed being produced. Wild horse tracks & droppings present. No cows used this area this spring/summer. At DW-61 south from the main water haul native grass was a very minor component, very infrequent. Use of winterfat by wild horses and rabbits was 17%.

On March 10, 1999 eight KFPM utilization transects were read in the North Sand Springs Valley Use Area for year long use by herbivores. This was accomplished in conjunction with drought monitoring of the use area. Transects were read at Key Areas DW- 21 and DW-58 to 61, as well as other areas typical of the plant communities and grazing patterns in the use area. Use of needleandthread ranged from 18% to 90% and averaged 64% (heavy) for seven transects. Use of Indian ricegrass was 86% and 9% at two transects. Use of winterfat was 90% at two transects. Photographs were taken. Range notes recorded on the utilization forms included the following:

At Key Area DW-58, Stco in the use cage was of good cured vigor with seedstalks to 30" tall. Current year's green up of Stco was ½ " of green leaves. Cow sign was abundant in the area. Wild horse sign also common. No sheep sign. Stable soils. Cow + wild horse sign also abundant at transect no. 2. At Key Area DW-21 Stco in the use cage of good cured vigor with seedstalks to 34", cured leaves to 14". Cow use, wild horse use, + minor sheep use. At DW-60, few invasive species were present. Good needlegrass component. Cattle, wild horse, + sheep use. At DW-

61 Indian ricegrass was infrequent while mustard & burweed were common. This winterfat meadow displays severe use along the length of it. At transect no. 7 west of the water haul by Brown Summit Reservoir Stco was used 18% and Orhy 9%. A little wild horse use. At DW-59 east of Brown Summit wild horse + cow use.

6.4 Line Intercept Cover Studies

Vegetation cover data was gathered in the North Sand Springs Valley Use Area on June 12, 2008. This study is called the Line Intercept Vegetation Cover Study. The results are presented in the following table:

Table 6.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – North Sand Springs Valley Use Area

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration
DW-21/ 6/12/08	N: 4311486 E: 0600375	28BY010NV Loamy 8-10"	7.56 feet/ 11.09 feet Potential 10-20 feet	Biotic crusts not native to sandy soil type	No excess trampling or compaction. Fair to moderate plant vigor.
DW-58/ 6/12/08	N: 4310418 E: 0599758	28BY010NV Loamy 8-10"	4.83 feet/ 17.12 feet Potential 10-20 feet	Biotic crusts not native to sandy soil type. Orange & white crusts on sagebrush stalks.	No excess trampling or compaction. Sheep moved through this winter.

6.4-2. Composition by Cover

Species composition by cover for Key Areas in the North Sand Springs Valley Use Area on June 12, 2008 is as follows:

DW-21		***DW-58***	
Wyoming sagebrush	88%	Wyoming sagebrush	72%
Needleandthread	9%	Rabbitbrush	12%
Squirreltail	2%	Needleandthread	10%
		Invasive mustard	2%
88% shrubs		Indian ricegrass	1%
		Squirreltail	1%
		Spiny gilia	1%
		Native mustard	1%
		Jessica's stickseed	trace
		84% shrubs	

6.5 Ecological Condition Information Including Similarity Index

Table 6.5-1. Ecological Condition Information at DW-21 (North Sand Springs Valley Use Area)

Key Area: DW-21
Date: 6/12/2008
Range Site: Loamy 8-10" P.Z. (028BY010NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Needleandthread	STCO	6.6%	10-20%	7%
Indian ricegrass	ACHY	0.2%	20-30%	0%
Squirreltail	SIHY	2.0%	2-8%	2%
Phlox	PHLOX	0.2%	2%	0%
Spiny gilia	LEPU	0.2%	2%	0%
Wyoming sagebrush	ARTRW	91.0%	25-35%	35%

Similarity Index 44% (mid seral stage) No cheatgrass was present in the study. Trend was recorded as not apparent.
Overall Production: 457 pounds per acre (air dry wt.). Normal year production is 600 pounds per acres. Unfavorable year production is 400 pounds per acre.
Potential vegetative composition is about 50% grasses, 5% forbs, and 45% shrubs.
Current composition is about 9% grasses, 1% forbs, and 91% shrubs.
Plant community dynamics: As ecological condition declines, Wyoming big sagebrush & rabbitbrush increase, while Indian ricegrass and needleandthread decrease. Various annual species are likely to invade this site. Utah juniper readily invades this site where it occurs nearby. When Utah juniper occupies this site it competes with other species for available light, moisture, and nutrients. If juniper canopies are allowed to close, they can eliminate all understory vegetation.
*from Ecological Site Description

Table 6.5-2. Ecological Condition Information at DW-58 (North Sand Springs Valley Use Area)

Key Area: DW-58
Date: 6/12/2008
Range Site: Loamy 8-10" P.Z. (028BY010NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Needleandthread	STCO	8.4%	10-20%	8%
Indian ricegrass	ACHY	0.5%	20-30%	1%
Squirreltail	SIHY	1.8%	2-8%	2%
Phlox	PHLOX	0.5%	2%	1%
Spiny gilia	LEPU	0.3%	2%	0%
Wyoming sagebrush	ARTRW	73.4%	25-35%	35%
Douglas rabbitbrush	CHVI8	13.7%	2-5%	5%

Similarity Index 53% (late seral stage based on production, mid seral stage based on composition). No cheatgrass was present in the study. Trend was recorded as not apparent.
Overall Production: 395 pounds per acre (air dry wt.). Normal yaer production is 600 pounds per acres. Unfavorable year production is 400 pounds per acre.
Potential vegetative composition is about 50% grasses, 5% forbs, and 45% shrubs.
Current composition is about 11% grasses, 1% forbs, and 87% shrubs.
Plant community dynamics: As ecological condition declines, Wyoming big sagebrush & rabbitbrush increase, while Indian ricegrass and needleandthread decrease. Various annual species are likely to invade this site. Utah juniper readily invades this site where it occurs nearby. When Utah juniper occupies this site it competes with other species for available light, moisture, and nutrients. If juniper canopies are allowed to close, they can eliminate all understory vegetation.
*from Ecological Site Description

6.6 Frequency Trend – North Sand Springs Valley Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-21	1995/2008	More Indian ricegrass Less needleandthread Less phlox	Static

6.7 Drought Indicator Checklist

Drought checks were conducted at Key Areas DW-58, DW-21, DW-60, and DW-59 on March 10, 1999. Several kinds of drought indicators were observed. Forage vigor of the key forage plants winterfat and needleandthread grass or Indian ricegrass was below average to average. Leader growth of shrubs was below average. The average height of current year's growth of needlegrass was one half inch. Leaves of deciduous shrubs were below average. Utilization of previous year's growth was moderate to heavy. Rainfall for the current year was below normal. The physical condition of wild horses was normal. Notes indicated the range specialist recommended on more year of drought & BLM should consider implementing a closure of North Sand Springs Valley.

A drought check was also conducted at Key Area DW-21 on August 2, 2000. Forage vigor was average. Leader growth of shrubs was also average. The average height of the current year's growth of needleandthread was 5 to 6". Utilization of the current year's growth of needlegrass was 22%. Rainfall for the current year was below normal. The physical condition of wild horses was normal.

Drought checks were also conducted at Key Areas DW-21 and DW-61 on November 29, 2000. At Key Area DW-21 forage vigor of needlegrass was below average while that of big sagebrush was average. Shrub leader growth was average. The average height of the current year's growth of needlegrass was 4". The utilization of the current year's growth of needlegrass was 21%. The physical condition of wild horses was normal. Water source availability was normal. Carryover forage of needlegrass was below average. At Key Area DW-61 forage vigor and shrub leader growth was average. The current year's growth of winterfat was 7 inches. Current year's use of winterfat was 14% and ricegrass, 72%.

Drought checks were also conducted at Key Areas DW-21 and DW-61 on April 26, 2001. Drought indicators were back to average, water sources were at normal levels, native plants were vigorous, and soil moisture was good. Use of the previous year's growth of needlegrass at DW-21 was 38% while use of the previous year's growth of winterfat at DW-61 was 27%. Use of very infrequent ricegrass at DW-61 was 86%.

6.8 Observed Apparent Trend

In June of 2000, in association with a frequency trend study, observed apparent trend was static (23) at Key Area DW-21. Notes from 2000 indicate soils were fairly stable and few invasive species were present in the area. The loose, sandy soil was susceptible to some wind erosion. Slope is 0%. Few gullies were present in the area.

7. DUCKWATER ALLOTMENT, PANCAKE EAST BENCH/DUCKWATER VALLEY USE AREA

7.1 Key Areas and Rangeland Ecological Sites

Table 7.1-1 Pancake East Bench Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-04	T13N R55E S25 SW1/4 NE1/4	Loamy 5-8" P.Z. (029XY017NV)	Shadscale Bud sagebrush Indian ricegrass	3130 Unsel gravelly Sandy loam
DW-22	T13N R55E S12 SE1/4	Loamy 5-8" P.Z. (029XY017NV)	Shadscale Bud sagebrush Indian ricegrass	3130 Unsel gravelly Sandy loam
DW-62	T12N R55E S1 SW1/4	Loamy 5-8" P.Z. (029XY017NV)	Shadscale Bud sagebrush Indian ricegrass	3130 Unsel gravelly Sandy loam
DW-64	T14N R55E S17 NE1/4	Loamy slope 12-14" P.Z. (029XY057NV)	Indian ricegrass bottlebrush squirreltail shadscale	620-Unsel-Broyles Association
DW-65	T13N R551/2E S1 SE1/4 SE1/4	Saline bottom (029XY004NV)	Basin wildrye Alkali sacaton Black greasewood	3521-Rustigate-Nuyobe Assoc.

* HCPC = Historic climax plant community

** Key Area DW-63 also occurs in the Pancake East Bench Use Area, but has not been studied over the years.

** Key area DW-04 is located on the alluvial fan west of the reservation on the track towards the Brown Summit Water Haul in salt desert shrub range.

Key Area DW-22 is located on the alluvial fan west of the reservation on the Pancake Bench towards Florio Spring in salt desert shrub range.

Key area DW-62 is located on the alluvial fan east of the McClure Spring water tank in salt desert shrub range.
Key Area DW-64 is located north of the reservation about 10 miles in the small valley west of the county line in big sagebrush range.
Key Area DW-65 is located in a saline meadow off the southwest edge of the reservation.

7.2 Licensed Livestock Use

7.2-1. Duckwater Cattle Company

Over the grazing seasons from 1999 to 2008, livestock permitted use on the Duckwater Allotment, Pancake East Bench/Duckwater Valley Use Area for Duckwater Cattle Company was 111 AUMs of cattle use and 65 AUMs of sheep use. During this same time period, livestock licensed use ranged from a high of 175 AUMs in 1999-2003 to a low of 0 AUMs in 2004 and 2007-2008. Livestock use has varied dependent on available forage due to growing conditions and the needs of the operator. Table 6.2-1 summarizes the licensed use data for this time period on the Pancake East Bench Use Area. Actual grazing use is presented in the table on page 85.

Table 7.2-1. Duckwater Allotment, Pancake East Bench Use Area Licensed Use by Duckwater Cattle Co.

Grazing Year	Cattle Actual Use (AUMs)	Sheep Actual Use (AUMs)	Total Actual Use (AUMs)	% Actual Use of Permitted Use (AUMs)
1999	110	65	175	99%
2000	110	65	175	99%
2001	110	65	175	99%
2002	110	65	175	99%
2003	110	65	175	99%
2004	0	0	0	0%
2005	110	0	110	62%
2006	110	0	110	62%
2007	0	0	0	0%
2008	0	0	0	0%

7.2-2. Duckwater Shoshone Tribe

The Shoshone Reservation borders the Pancake East Bench/Duckwater Valley Use Area. For this reason, cattle often graze this pasture prior to or following grazing use in other pastures. There is access to Duckwater Creek in this pasture outside the reservation fences. The Tribe currently makes grazing use in the Pancake East Bench Use Area on odd years. Traditionally, cattle were turned out in spring and stayed through the summer months, some years as late as November. In more recent years, the Tribe has had difficulty keeping cattle in this area due to drought, the low productivity of the native range, and wild horse use. Cattle have drifted to the Pancake Use Area or returned to the reservation as early as May.

Use in 1998 and 1999 in the Pancake Use Area is as follows:

Use Area/Grazing Year*	Cattle Numbers	Grazing Season	AUMs	Comments
Pancake/ 1998	300 765 300	3/15/1998 – 5/15/1998 6/15/1998 – 6/20/1998 6/21/1998 – 11/24/1998	612 151 1548	from 5/15 to 6/15 cows were on reservation pastures
Pancake/ 1999	250 300 350	4/1/1999 – 4/30/1999 5/1/1999 – 6/30/1999 7/1/1999 – 10/31/1999	247 602 1415	An annual livestock grazing agreement was reached and signed for May 1 –June 30 for 750 cattle

7.2-3. Paris Livestock

Paris Livestock licenses sheep use for the allotment as a whole. From 1994-1998, Paris Livestock drew maps of his sheep trailing areas in the allotment south in January and north in March. Maps were also submitted for 2008 and 2009 to date. Sheep made use of this area from February through March 2008 and in January 2009. Normal use is about 5 to 7 days in the area south and 5 to 7 days in the area north. In February and March 2008 use was made on the east side of the Pancake Mountains from Louie Spring in the north to McClure Spring in the south.

Use varied in the Pancake Use Area from 1994 – 1998 (5 years) as follows:

In January, 1998 through March 1998 two 2250 head sheep bands made use in the area.
In January 1997 through March 1997 two 2000 head bands and an 850 head band made use in the area.
In March 1996 one 850 head yearling band made use on their way north in the area.
In January 1996 two 2000 head bands and an 850 head yearling band made use in the area on their way south.
In January 1995 one 900 head band and two 2000 head bands made use of the area on their way south.
In March 1995 one 900 head band (probably yearlings) made use traveling north in the area.
In January 1994 sheep made use while heading south in the area. In March 1994 two 2000 head bands made use in the area.

7.3 Utilization

On May 26, 2009 four KFPM utilization transects were read in the "Duckwater Corner" area of the Pancake East Bench/Duckwater Valley Use Area for use to date for the 2009 growing season. Transects were read at Study Sites A, B, and C. Use of Indian ricegrass was essentially 0%. Use of winterfat at two transects near Study Site A was 9% and 4%. Use of galleta grass was 0% at two transects. Use was by wild horses. Range notes recorded on the utilization forms included the following:

At Study Site A current year's use of four wing saltbush was slight or less. Winterfat was generally 2" or shoryter in the area, but relatively unused. Last year's use appeared to be heavy or severe for the entire grazing year ending February 28. Seven wild horses were observed to the west of the study area. At Study Site B galleta grass was making fair growth (an improvement from last year) and making a seed crop this year. At Study Site C old wild horse & cattle droppings were present. There was no use of galleta grass or Indian ricegrass. In Wyoming sagebrush range further up in the basin current year's use of cool season perennial bunchgrasses, galleta grass, or spiny hopsage was slight or less by wild horses. A little cheatgrass was present, composing less than 1/100 of 1% of the plant community current annual growth. Otherwise, there were few invasive species throughout the "Duckwater Corner" area other than a very small amount of annual mustard or stickseed.

Photographs taken in the area throughout the day indicate a range with soils stabilized by surface fragments (gravelly) and live vegetation, with few invasive plant species present. The salt desert shrub or sagebrush ranges show mid seral ecological condition based on the photographs and personal observations.

On May 20, 2008 utilization was recorded for galleta grass for current year's growth in association with completion of an ecological condition study. Use of galleta grass was 4%.

On March 19, 2008 five KFPM utilization transects were read in the Pancake East Bench/Duckwater Valley Use Area for year long use by herbivores. Transects were read at Key Areas DW- 62, 65, 04, and 37, as well as at a study site typical of the plant communities and grazing patterns in the use area. Overall, light use was indicated in the area. Use of ricegrass at Key Area DW-62 was 42%. Use of alkali sacaton at key Area DW-65 was 29%. Use of galleta grass was 12% and 23% at two locations. Use of winterfat was 27% and 42% at two locations. Use of black sagebrush at Study Site #1 was 22%. Photographs were taken. Range notes recorded on the utilization forms included the following:

Galleta grass in the use cage at Key Area DW-62 of fair cured vigor, average curly leaf is 2". Dry year last year indicated. Phlox is very frequent here. No invasive species are present. Stable gravel soils. Small rabbitbrush is the dominant species. At Key Area DW-65 alkali sacaton in the cage was of good cured vigor, levaes average 4". Not much seed produced last year. Unique area. No invasive species, cow + rabbit use. At Key Area DW-04 west of the reservation ungrazed cheatgrass in the use cage has caused the mortality of perennial bunchgrass. Outside the use cage, cheatgrass is very sparse, only grew to average of 3". It is less than 2% of current annual production. At Key Area DW-37 winterfat inside the use cage was of good cured vigor to 22" tall. Cage not moved in several years. Area mixture of winterfat & sparse halogeton. Cow + wild horse use. Fairly large & coarse winterfat plants are typical here. Few young & palatable plants present. Somewhat degraded site. Cured mustard present from last year. Little to no native grass.

On March 18, 2008 four KFPM utilization transects were read in the Pancake East Bench/Duckwater Valley Use Area for year long use. Transects were read at Key Areas DW-22, DW-64, and other areas typical of the plant communities and grazing patterns in the allotment. Use of Indian ricegrass ranged from 23% to 60% and averaged 42% (moderate) for three transects. Use of galleta grass was 25% and 24% (light) at and near DW-22. Use of needleandthread was 34% (light) at DW-64. Range notes recorded on the utilization forms included the following:

At DW-22, Orhy in the use cage was of fair cured vigor to 8" tall. Galleta grass inside the cage was of fair vigor at best & did not grow much during the 2007 year. This is rabbitbrush dominated range, a dry site, on a gravelly silt soil, where native plants were lacking in vigor. One half mile from DW-22, still rabbitbrush dominant range, a low precip area, with combined use by cattle, wild horses, and sheep. At DW-64, several new needlegrassseedlings were growing in the use cage. Sheep had used the area during winter. Perennial grasses inside the use cage were of good cured vigor to 9" tall. A good native grass component was noted. Some cheatgrass grew in the area during 2007, primarily beneath shrubs. Scattered pinyon & juniper trees in the area no problem (no encroachment). At 0.6 miles past DW-64 a very diverse range was noted with a variety of native grasses. Use of black sagebrush by wintering sheep was light or less. Very stable gravelly soild were noted. Very scattered pinyon & juniper trees.

On March 19, 2001 a KFPM use transect was conducted at Key Area DW-64 (west of the county line) in the Pancake East Bench Use Area for year long use by herbivores during the 2000 grazing year. Use of Indian ricegrass was 66%. Range notes recorded on the utilization forms included the following:

About 40 head of cows grazed the area through the winter. Cured growth of ricegrass inside the use cage to 10". Good productive sagebrush area with moderate abundance of juniper trees.

On March 10, 1999 a KFPM use transect was conducted at Key Area DW-64 (west of the county line) in the Pancake East Bench Use Area for year long use by herbivores. Use of Indian ricegrass was 12% and use of needlegrass was 11%. Range notes recorded on the utilization forms included the following:

Good cured forage available. No significant green up yet. A few grass leaves to 1". Cheatgrass is abundant in the area.

7.4 Line Intercept Cover Studies

Table 7.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – Pancake East Bench/Duckwater Valley Use Area

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration
DW-04/ 5/20/08	N: 4310466 E: 608021	Loamy 5-8" PZ. (029XY017NV)	5.72 feet/ 11.47 feet Potential 15- 25 feet	No biotic crusts present.	No excess trampling or compaction. Good plant diversity. Low production.
DW-22/ 5/20/08	N: 4314500 E: 608394	Loamy 5-8" PZ. (029XY017NV)	5.95 feet/ 16.86 feet Potential 15-25 feet	Biotic crusts not native to sandy soil type.	No excess trampling or compaction. Very dry site. Not as forb rich as DW-04.
DW-62/ 5/27/2008	N: 4307049 E: 608587	Loamy 5-8" PZ. (029XY017NV)	6.12 feet/ 3.12 feet Potential 15-25 feet	Little biotic crust present. Just pebbles. Plants not pedestalled.	No excess trampling or compaction. Not used by cows this year. Dry site. No visual evidence of erosion.
DW-64/ 5/20/2008	N: 4327466 E: 603960	Loamy slope 12-14" P.Z. (029XY057NV)	14.11 feet/ 31.06 feet Potential 20-30 feet	Biotic crusts are abundant on nearby rocks.	No excess trampling or compaction. No cow use this year. Excellent Agsp & forbs growing in area.
DW-65/ 5/27/2008	N: 4308051 E: 609935	Saline bottom (029XY004NV)	9.09 feet/ 4.89 feet Potential 40-60	Sandy/silt soil type not appropriate for biological surfaces. Historical ponding evident. Now drying out.	No excess trampling or compaction. No invasive species. Not being used this year. Widely spaced shrubs.

7.4-2. Composition by Cover

Species composition by cover for Key Areas in the Pancake East Bench Use Area on May 20 and 27, 2008 is as follows:

DW-04		***DW-22***		***DW-62***	
Bud sagebrush	29%	Rabbitbrush	36%	Eriogonum	65%
Rabbitbrush	27%	Bud sagebrush	20%	Rabbitbrush	28%
Galleta grass	33%	Shadscale	20%	Bud sagebrush	4%
Indian ricegrass	6%	Galleta grass	18%	Galleta grass	4%
Mentzelia	2%	Horsebrush	2%		
Lepidium	1%	Globemallow	2%	32% shrubs	
Perennial forb	2%	Squirreltail	2%		
56% shrubs		78% shrubs			
DW-64		***DW-65***			
Big sagebrush	47%	Alkali sacaton	44%		
Needleandthread	12%	Greasewood	36%		
Western wheatgrass	10%	Horsebrush	14%		
Blazingstar	11%	Rabbitbrush	3%		
Indian ricegrass	7%	Squirreltail	2%		
Rabbitbrush	11%	Saltgrass	1%		
Eriogonum	1%	Kochia Americana	1%		
Cheatgrass	1%				
Starwort	Trace	54% shrubs			
Native mustard	Trace				
Perennial forb	Trace				
58% shrubs					

Table 7.4-3. Line Intercept Vegetation Cover Data - Duckwater Allotment – Pancake East Bench/Duckwater Valley Use Area – "Duckwater Corner" 5/26/2009

Study Site/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration
SS-A 5/26/2009	N: 4301551 E: 608238	Shallow calcareous loam 8-12" 029XY008NV	14.82 feet/ 3.39 feet Potential 20-30 feet	Black biotic crusts present	No excess trampling or compaction. No invasive species
SS-B 5/26/2009	N: 4301854 E: 610126	Gravelly loam 5-8" PZ. (029XY087NV)	17 feet/ 2.02 feet Potential 15-25 feet	Not recorded	No excess trampling or compaction
SS-C 5/26/2009	N: 4300390 E: 608831	Loamy 5-8" PZ. (029XY017NV)	14.87 feet/ 4.96 feet Potential 15-25 feet	A few biotic crusts present	No excess trampling or compaction
SS-D 5/26/2009	N: 4302441 E: 611039	Shallow calcareous loam 8-12" 029XY008NV	12.27 feet/ 0.85 feet Potential 20-30 feet	Some biotic crusts are present under shrubs & on rocks	No excess trampling or compaction.

Observations from the line intercept vegetation cover study forms are as follows:

At SS-A a very gravelly soil surface was present, stabilizing the soils. No plant pedestalling, no surface erosion. No invasive species. Ricegrass & squirreltail making seed. Good plant diversity. At SS-B bud sagebrush appeared to be increasing. The gravelly loam soil surface was stabilized by surface fragments & live vegetation. No plant pedestalling. Good plant diversity. Several dead native perennial grass plants were noted. At SS-C soils were stabilized by surface fragments, live vegetation, & litter. No plant pedestalling. Good species diversity. At SS-D the soils were stabilized by surface fragments, rock, and live vegetation. No plant pedestalling. No utilization noted to this point in the growing season.

Photographs were taken at each of the study areas. The photographs indicate stable soils undisturbed by grazing where infiltration & permeability rates are appropriate to site potential.

7.4-4. Composition by Cover

Species composition by cover for Study Sites in the "Duckwater Corner" area of the Pancake East Bench Use Area on May 26, 2009 is as follows:

SS-A		***SS-B***		***SS-C***	
Black sagebrush	79%	Greasewood	41%	Rabbitbrush	55%
Rabbitbrush	9%	Bud sagebrush	38%	Bud sagebrush	20%
Moorman tea	4%	Wyoming sagebrush	12%	Wyoming sagebrush	12%
Stickseeed	3%	Shadscale	3%	Stickseed	5%
Squirreltail	2%	Galleta grass	3%	Brassica	2%
Spiny hopsage	1%	Rabbitbrush	2%	Globemallow	1%
Indian ricegrass	1%	Buckwheat	1%	Squirreltail	1%
Perennial forb	1%	Cordylanthus	1%	Cordtlanthus	1%
Galleta grass	Trace	Squirreltail	Trace	Galleta grass	1%
		Perennial forb	Trace	Buckwheat	1%
93% shrubs		Stickseed	Trace	Waterleaf	Trace
3% native grasses					
1% native forbs		96% shrubs		87% shrubs	
3% invasive annuals		3% native grasses		2% native grasses	
		2% native forbs		5% native forbs	
				5% invasive annuals	
SS-D					
Black sagebrush	63%				
Rabbitbrush	19%				
Moorman tea	15%				
Spiny hopsage	3%				
Squirreltail	Trace				
100% shrubs					

7.5 Ecological Condition Information Including Similarity Index – Pancake East Bench/Duckwater Valley Use Area

Table 7.5-1. Ecological Condition Information at DW-04

Key Area: DW-04
Date: 5/20/2008
Range Site: Loamy 5-8" P.Z. (029XY017NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Galleta grass	PLJA	31.1%	2-10%	10%
Douglas rabbitbrush	CHVI8	32.8%	0-3%	3%
Bud sagebrush	ARSP	25.6%	5-15%	15%
Cheatgrass	BRTE	2.8%	0%	0%
Mustard	LEPI	1.1%	0%	0%
Agoseris	AGOSE	0.6%	0-2%	1%
Purple threeawn	ARPU9	0.6%	0-2%	1%
Squirreltail	ELEL	1.1%	2-5%	1%
Tansymustard	DESCU	1.7%	0-2%	2%

Similarity Index 36% (mid seral stage). Trend was recorded as not apparent.
Overall Production: 180 pounds per acre including cheatgrass (air dry wt.). Normal yaer production is 350 pounds per acres. Unfavorable year production is 150 pounds per acre.
Potential plant community composition is about 45% grasses, 5% forbs, and 50% shrubs.
Current composition is about 33% grasses, 4% forbs, and 59% shrubs.
Plant community dynamics: Where management results in abusive grazing use by cattle and/or feral horses, shadscale, rabbitbrush, horsebrush, sand dropseed, and galleta increase, while Indian ricegrass, winterfat, and bud sagebrush decrease. Following wildfire snakeweed and rabbitbrush greatly increase & may dominate. Species likely to invade this site are halogeton, Russian thistle, cheatgrass, and annual mustards.
*from Ecological Site Description

* Four unidentified perennial or annual forbs not listed above occurred in the study.

Table 7.5-2. Ecological Condition Information at DW-64

Key Area: DW-64
Date: 6/16/92
Range Site: Loamy slope 12-14" P.Z. (029XY057NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
needleandthread	HECO26	25.8%	5-10%	10%
Indian ricegrass	ACHY	6.6%	2-8%	7%
Sandberg's bluegrass	POSE	0.6%	0-3%	1%
Squirreltail	SIHY	0.7%	0-3%	1%
Big sagebrush	ARTR	58.8%	20-30%	30%
Douglas rabbitbrush	CHVI8	0.4%	0-3%	0%
Spiny hopsage	GRSP	7.1%	0-3%	3%

Similarity Index 52% (late seral satge).
Overall Production: 1,097 pounds per acre (air dry wt.). Normal yaer production is 500 pounds per acres. Favorable year production is 700 pounds per acre.
Potential plant community composition is about 50% grasses, 10% forbs, and 40% shrubs.
Current (1992) composition is about 34% grasses, 66% shrubs, and 0% forbs.
Plant community dynamics: Where management results in abusive livestock use, big sagebrush, rabbitbrush, galleta, bottlebrush squirreltail & Sandberg's bluegrass increase while beardless wheatgrass, needlegrasses, and Indian ricegrass decrease. Species likely to invade this site are annuals such as cheatgrass & annual mustards. In the absence of periodic wildfire, pinyon & juniper trees readily invade this site where it occurs next to woodlands. If pinyon-juniper canopies are allowed to close, they can eliminate understory vegetation.
*from Ecological Site Description

Three other ecological condition studies were completed in the area of DW-64 on June 16, 1992 (Site Write Ups 1, 3, and 4). A good native grass and forb component was present in each of these areas, with stable undisturbed soils relatively unused by herbivores. No invasive species were present. Plant community production & vigor were good.

7.6 Frequency Trend – Pancake East Bench/Duckwater Valley Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-04	1989/2008	Less purple threeawn grass Less sand dropseed More cheatgrass Less globemallow More rabbnitbrush Less shadscale More bud sagebrush More native perennial forbs	Declining

Key Area	Years Read	Significant Changes	Indicated Trend
DW-22	1995/2000	More rabbitbrush More budsagebrush	Static

7.7 Observed Apparent Trend

In August 1994, observed apparent trend was static (19) at Key Area DW-04. Notes from 1994 indicate very dry conditions. Galleta grass & sand dropseed were observed to be in of very limited vigor.

In June 1995, observed apparent trend was downward (16) at Key Area DW-22. Notes from 1995 indicate spiny hopsage was present on the site, but not in the transect. Galleta grass was in good vigor. Very infrequent ricegrass was in fair vigor. An overabundance of rabbitbrush and a lack of ricegrass & sand dropseed was noted, and many annuals.

In July 2000, observed apparent trend was static (19) at Key Area DW-22. Notes from 2000 indicate Indian ricegrass & galleta grass inside the use cage were of fair vigor. Dry conditions were prevalent. The range was dominated by rabbitbrush, perhaps a sign of overgrazing by sheep. Annuals were observed to be very infrequent compared to 5 years ago.

8. DUCKWATER ALLOTMENT, POGUES STATION USE AREA

8.1 Key Areas and Rangeland Ecological Sites

Table 8.1-1 Duckwater Allotment, Pogues Station Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-08	T16N R54E S10 NE1/4 NW1/4	Saline terrace 5-8" P.Z. (028BY047NV)	Sickle saltbush western wheatgrass	590-Raph-Katelana-Zimwala association
DW-10	T16N R54E S14 NE1/4 SW1/4	Loamy 5-8" P.Z. (029XY017NV)	Shadscale Bud sagebrush Indian ricegrass	620-Unsel-Broyles Association
DW-16	T15N R54E S14 SE1/4	Silty 8-10" P.Z. (028BY013NV)	winterfat Indian ricegrass	633-Roden-Izar association
DW-74	T16N R54E S2 SW1/4 NW1/4	Loamy 5-8" P.Z. (028BY017NV)	Indian ricegrass bottlebrush squirreltail shadscale	620-Unsel-Broyles Association

* HCPC = Historic climax plant community

** Key Areas DW-44 & DW-45 also occur in the Pogues Station Use Area, but have thus far primarily just been used as areas to study utilization.

DW-08 occurs on the valley bottom about 1 mile north of "Government Well" or "Indian Well."

DW-10 occurs on the alluvial fan about 1 mile east of Indian Well.

DW-16 occurs in the hills about 1.2 miles south of Pogues Station.

DW-74 occurs in the valley just west of the south point of Black Point Mountain.

8.2 Licensed Livestock Use

8.2-1. Duckwater Shoshone Tribe

The Tribe licenses use on an allotment wide basis. The Pogues Use Area has been one of the tribe's main use areas over the years. An informal grazing rotation system was initiated in 2001, whereby grazing occurs in the north portion of the tribal use areas on even years and in the south portion of the use areas on odd years. The Pogues Use Area was grazed in 2002, 2004, 2006, 2008, and is scheduled again for 2010. Prior to 2001, grazing occurred in this use area each year. Cattle are normally turned out to this area about May 1 and have stayed as late as November. In more recent years, cattle have returned to the reservation earlier in fall, as early as July or August, as range conditions have declined. Cattle numbers have varied according to the needs of the Tribe, the availability of water haul tanks, and forage condition.

8.2-2. Paris Livestock

Paris Livestock licenses sheep use for the allotment as a whole. From 1994-1998, Paris Livestock drew maps of his sheep trailing areas in the allotment south in January and north in March. Maps were also submitted for 2008 and 2009 to date. Yearling ewe sheep made use of this area from February through March 2008 and in January 2009.

Use varied in the Pogues Station Use Area from 1994 – 1998 (5 years) as follows:

In January, 1998 through March 1998 two 2250 head sheep bands made use in the Pogues Area.
In January 1997 through March 1997 two 2000 head bands and a 850 head yearling band made use in the Pogues Area.
In March 1996 two 2000 head bands made use on their way north in the Pogues Area.
In January 1996 no use was made by sheep in this area.
In January 1995 no use was made by sheep in this area.
In March 1995 two 2000 head bands made use in this area.
In January 1994 no use was made in the area. In March 1994 one 2000 head band made use in the east portion of the Pogues Area.

8.2-3. Thomas and Ellen Gardner

The sheep (1425) began grazing the Little Smoky Valley use area in mid December 2008 and are expected to graze the area until the end of January 2009, for a total of 450 AUMs. The sheep are expected to graze the Pogues Area for about 14 days this winter, or 131 AUMs.

Sheep stayed in the Duckwater Allotment a total of 57 days in 2007/08. About 10 days were spent in Little Smoky Valley. About 17 days were spent in the Pogues Area, for 148 AUMs.

During the winter of 2007 (Gary Snow), no use was made in this area by sheep.

During the winter of 2006, 1000 sheep were licensed in the Duckwater Allotment from 11/1/2005 to 02/28/2006, for 789 AUMs while 800 sheep were licensed from 12/15/2005 to 2/20/2006 for 358 AUMs. About half this use was made in Little Smoky Valley, or approximately 574 AUMs. About ¼ of the use was made in the Pogues Area, or approximately 287 AUMs.

Prior to the winter of 2006, this sheep permit was not activated in this area since about 1995.

8.3 Utilization

On August 21, 2008 three KFPM transects were conducted in the Pogues Station Use Area for use to date by herbivores. Use of Indian ricegrass was 73 and 78% at two areas. The average height of ricegrass at the key area in the middle of the pasture was 1.5".

On May 29, 2008 in association with a vegetation cover study, current year's use of sickle saltbush at Key Area DW-08 was 1%. Cattle just did not graze the area during 2008 due to low production & dry conditions.

On May 29, 2008 in association with a vegetation cover study, current year's use of ricegrass at Key Area DW-10 was 14%, use of winterfat was 7%, and use of sickle saltbush was 20%. No use of bud sagebrush or galleta grass was noted.

On May 29, 2008 in association with a vegetation cover study, current year's use of ricegrass at Key Area DW-16 was 29%, while use of winterfat was 50%. New winterfat seedlings were common in the area.

On March 20, 2008 nine KFPM utilization transects were read in the Pogues Station Use Area for year long use by herbivores. Transects were read at Key Areas DW- 08, 10, 16, 44, 45, as well as other areas typical of the plant communities and grazing patterns in the use area. Use of winterfat ranged from 48% to 86% and averaged 65% (heavy) for six transects. Use of Indian ricegrass ranged from 42% to 84% and averaged 60% (moderate) for five transects. Use of galleta grass was 21% at one transect. Use of black sagebrush by sheep was 14% and 15% at two transects. Use of sickle saltbush at Key Area DW-08 was 42%. Photographs were taken. Use in the Pogues Area for the 2007 grazing year was primarily by sheep during winter and by a few wild horses. The Shoshone tribe did not graze the area in 2007, according to a rotational grazing program. Range notes recorded on the utilization forms included the following:

At Key Area DW-10 east of Government Well sheep were observed to have grazed & trailed through the area in winter. Galleta grass just did not grow to above 2" for the grazing year. Winterfat inside the use cage was of fair cured vigor to 3" high. Ricegrass also of fair vigor with cured leaves to 4" high, greening to 1/2" leaves. Some cured halogeton in the range producing < 1% of current annual growth. At about 0.6 miles northeast to the next transect no cheatgrass & no halogeton were present in the range. Sheep also grazed through this area. Some wild horse sign also present. At Key Area DW-08 north of Government Well very few native perennial grasses were present. No cheatgrass, no halogeton, just large shrub interspaces on a very dry site. Blocky clay silt soil. At Key Area DW-45 north of Pogues Station in black sagebrush range no cheatgrass was present. Small pockets of halogeton averaging 10' diameter present. Stable gravel soils. Sheep also trailed through this area. At Key Area DW-44 west of Pogues Station ricegrass inside the use cage was of fair cured vigor to 5" high. Winterfat in the use cage also of fair cured vigor to 4" high. No cheatgrass present. Again, small pockets of halogeton present. Sheep also trailed through here. Sheep sign was abundant at the reservoir about 2 miles west of Pogues Station. At transect no. 6 there was a mix of winterfat & halogeton west of the reservoir. Light sheep sign from winter. At transect no. 8 sheep tracks were abundant. No native grass was present. Halogeton was abundant in the area. At Key Area DW-16 south of Pogues Station winterfat in the use cage was of good cured vigor to 7" tall. Indian ricegrass had 3 years accumulated growth to 9" with no green growth beneath cured. Use of bud sagebrush was light or less. No cheatgrass was present. Halogeton occurred along the roadway.

On March 12, 2007 three KFPM transects were read in the Pogues Station Use Area for year long use by herbivores during the 2006 grazing year. Studies were read at Key Areas DW-08, DW-10, and DW-44. Use of Indian ricegrass was 74 and 78% at two transects. Use of winterfat was 68 and 82% at two transects. Use of sickle saltbush was 48% at DW-08. Use of galleta grass was 48% at DW-10. Range notes recorded on the utilization forms included the following:

At Key Area DW-10, Indian ricegrass inside the use cage was of good vigor – thick, to 10" tall. The range is dominated by rabbitbrush, bud sagebrush, & shadscale. Little cured forage available. At DW-08, very dry conditions were apparent. Sickle saltbush in the use cage was of good dormant vigor to 6" tall. Not enough perennial bunchgrass was present to sample the population. At DW-44 winterfat in the use cage was of good dormant vigor to 16" tall. Ricegrass also of good dormant vigor to 8" tall.

On July 17, 2003 a KFPM transect was conducted at Key Area DW-74 in the Pogues Station Use Area for use to date by herbivores. Indian ricegrass was used 8%, winterfat 4%, and sickle saltbush 1%. Range notes recorded on the utilization form included the following:

Native perennial grass was of poor vigor. Drought + heavy grazing are taking a toll in the area.

On August 21 and 22, 2000 six KFPM transects were conducted in the Pogues Station Use Area for use to date by herbivores. Transects were conducted at key areas and other areas typical of the grazing patterns and plant communities of the use area. Use of Indian ricegrass ranged from 73 to 86% and averaged 80% (heavy) for five transects. Use of winterfat was 61 and 56% at two

transects. Use of sickle saltbush was 40% at DW-08 and use of squirreltail was 76% at DW-08. Range notes recorded on the utilization forms included the following:

At Key Area DW-10 ricegrass inside the use cage was cured, past seed ripe, to 14" tall. Winterfat was dry to about 6" tall. 90% of the production in the area is small rabbitbrush. Both winterfat & ricegrass on the range average less than 2" tall stubble height. At Key Area DW-08 north of the well in salt desert shrub range sickle saltbush in the use cage was of fair vigor, producing some seed, to 12" tall. Sickle saltbush still had green leaves. Cattle tracks common in the area. At 2.8 miles north of the well in small rabbitbrush dominated range the stubble height was averaging less than 1" tall. Cow use. No wild horse sign observed. About 1 mile east of Cuni Camp winterfat was dry, lacked vigor, not leafy. Cattle use. At Key Area DW-45 north of Pogues Station seedstalks of needlegrass inside the use cage to 20". Leaves average about 6 to 7 inches. Fairly vigorous.

On June 22, 2000 two KFPM transects were conducted in the Pogues Station Use Area for use to date by herbivores. At Key Area DW-10 use of winterfat was 56% and use of Indian ricegrass was 53%. At transect no. 2 use of winterfat was 58%. Range notes recorded on the utilization forms included the following:

At Key Area DW-10 winterfat inside the use cage was of fair vigor to 4" tall. Ricegrass in the use cage was of good vigor to 16" tall. At transect no. 2 very little native perennial bunchgrass was present. The range was very dry.

On November 4, 1999 eight KFPM transects were conducted in the Pogues Station Use Area for use to date by herbivores. Transects were conducted at Key Areas DW-10, 8, 45, 44, 16, and other areas typical of the grazing patterns and plant communities of the use area. Use of Indian ricegrass ranged from 22% to 80% and averaged 55% (moderate) for eight transects. Use of winterfat ranged from 38% to 66% and averaged 53% (moderate) for five transects. Use of sickle saltbush was 23% and use of squirreltail was 76% at DW-08. Use of needleandthread was 40% and 39% at two transects.

8.4 Line Intercept Cover Studies

Vegetation cover data was gathered in the Pogues Station Use Area on May 29, 2008 and July 17, 2003. Photographs were taken. The results are presented as follows:

Table 8.4-1. Line Intercept Vegetation Cover Data - Duckwater Allotment – Pogues Station Use Area

Key Area/ Date	UTM Location	Ecological Site	Vegetation Cover/Litter	Biological Surfaces	Soil Compaction/ Infiltration.
DW-10/ 5/29/2008	N: 4346118 E: 597822	29XY017NV Loamy 5-8"	9.05 feet/ 7.11 feet Potential 15-25 feet	Biological surfaces not present	No excess trampling or compaction.
DW-08/ 5/29/2008	N: 4348140 E: 596480	28BY047NV Saline terrace 5-8	1.77 feet/ 6.50 feet Potential 5-10 feet	Biological crusts not native to this site.	No excess trampling or compaction. No animals using area.
DW-16/ 5/29/2008	T. 15N., R. 54E., Sec. 14 SE ¼	28BY013NV Silty 8-10"	6.65 feet/ 3.90 feet Potential 10-20 feet	Biological crusts not native to this site.	Cattle are working area pretty good.
DW-74/ 5/29/2008	N: 4349157 E: 597548	29XY017NV Loamy 5-8"	1.03 feet/ 11.51 feet Potential 5-15 feet	Black biotic crusts on pedestals beneath shrubs.	No excess trampling or compaction. Very dry conditions.
DW-74/ 7/17/2003	N: 4349157 E: 597548	28BY017NV Loamy 5-8"	9.71 feet/not Measured Potential 5-15 feet	Cryptogamic black structure on plant pedestals…very minor amount.	No compaction problems. Silty gravel soil being worked a little to heavily. No invasive species present.

8.4-2. Composition by Cover

Species composition by cover for Key Areas in the Pogues Station Use Area is as follows:

DW-10		***DW-08***		***DW-16***	
Bud sagebrush	34%	Sickle saltbush	97%	Bud sagebrush	48%
Rabbitbrush	30%	Shadscale	3%	Rabbitbrush	3%
Galleta grass	6%			Winterfat	36%
Globemallow	12%	100% shrubs		Indian ricegrass	4%
Horsebrush	10%			Needleandthread	3%
Sickle saltbush	7%			Squirreltail	4%
Winterfat	1%				
Halogeton	Trace			87% shrubs	
82% shrubs					
DW-74 (5/29/2008)		***DW-74 (7/17/2003)***			
Sickle saltbush	37%	Sickle saltbush	2%		
Winterfat	33%	Winterfat	7%		
Rabbitbrush	15%	Rabbitbrush	50%		
Indian ricegrass	8%	Indian ricegrass	6%		
Bud sagebrush	8%	Bud sagebrush	31%		
		Globemallow	1%		
92% shrubs		Squirreltail	4%		
		90% shrubs			

8.5 Ecological Condition Information Including Similarity Index

Table 8.5-1. Ecological Condition Information at DW-08 (Pogues Station Use Area)

Key Area: DW-08 *
Date: 5/29/2008
Range Site: Saline terrace 5-8" P.Z. (028BY047NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Sickle saltbush	ATFA	94%	55-65%	65%
Indian ricegrass	ACHY	Trace	2-8%	0%
Shadscale	ATCO	6%	2-5%	5%
Bud sagebrush	PIDE4	Trace	3%	0%

Similarity Index 70% (late seral based on production, mid seral based on composition). Apparent rend was recorded as declining.

Overall Production: 52 pounds per acre (air dry wt.) – very dry, droughty year. Unfavorable year production is about 200 pounds per acre. Normal year production is about 300 pounds per acre.

Potential vegetative composition is about 15% grasses, 5% forbs, and 80% shrubs.

Current composition is 100% shrubs.

Plant community dynamics: Where management results in abusive livestock use, western wheatgrass, Indian ricegrass and other palatable grasses & shrubs decrease, while sickle saltbush, shadscale, & annuals increase. Halogeton, annual mustards & Russian thistle are species likely to invade this site.

*from Ecological Site Description

* An ecological condition study completed at key Area DW-08 on July 22, 1991 resulted in 8 pounds per acre air dry weight. The site was noted as extremely drought stricken, over grazed, with a lack of native grasses & in a downward trend.

Table 8.5-2. Ecological Condition Information at DW-10 (Pogues Station Use Area)

Key Area: DW-10
Date: 5/29/2008
Range Site: Loamy 5-8" P.Z. (029XY017NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	2.0%	25-45%	2%
Galleta grass	PLJA	10.0%	2-10%	10%
Globemallow	SPCO	1.0%	2%	1%
Bud sagebrush	PIDE4	31.0%	5-15%	15%
Douglas rabbitbrush	CHVI8	19.0%	3%	3%
Sickle saltbush	ATFA	29.0%	3%	3%
Winterfat	KRLA2	3.0%	3%	3%
Halogeton	HAGL	7.0%	0%	0%

Similarity Index 37% - (mid seral). Apparent trend was recorded as declining.
Overall Production: 196 pounds per acre (air dry wt.). Normal yaer production is 450 pounds per acres. Unfavorable year production is about 200 pounds per acre.
Potential vegetative composition is about 45% grasses, 5% forbs, and 50% shrubs.
Current composition is about 13% grasses, 1% forbs, and 86% shrubs (of native).
Plant community dynamics: Where management results in abusive grazing use by cattle and/or feral horses, shadscale, rabbitbrush, horsebrush, sand dropseed, and galleta increase, while Indian ricegrass, winterfat and bud sagebrush decrease. Following wildfire snakeweed and rabbitbrush greatly increase and may dominate the site for a protracted period. Species likely to invade this site are halogeton, Russian thistle, cheatgrass, and annual mustards.
*from Ecological Site Description

Table 8.5-3. Ecological Condition Information at DW-74 (Pogues Station Use Area)

Key Area: DW-74
Date: 7/7/2003
Range Site: Loamy 5-8" P.Z. (028BY017NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	13.6%	10-20%	14%
Squirreltail	ELEL5	1.6%	5-15%	2%
Bluegrass	POSE	0.5%	2%	1%
Bud sagebrush	PIDE4	18.8%	10-25%	19%
Douglas rabbitbrush	CHVI8	29.3%	3%	3%
Sickle saltbush	ATFA	13.1%	3%	2%
Winterfat	KRLA2	14.7%	3%	3%
Shadscale	ATCO	8.4%	40-50%	8%

Similarity Index 52% (late seral stage). Apparent trend was recorded as declining.
Overall Production: 191 pounds per acre (air dry wt.). Normal yaer production is 300 pounds per acres. Unfavorable year production is about 200 pounds per acre.
Potential vegetative composition is about 45% grasses, 5% forbs, and 50% shrubs.
Current composition is about 17% grasses, 0% forbs, and 83% shrubs.
Plant community dynamics: Where management results in abusive livestock use, shadscale increases in density, while Indian ricegrass, squirreltail and bud sagebrush compositions are reduced. With further site degradation, shadscale may become dominant to the extent of a nearly pure stand. Cheatgrass, halogeton, and tansy mustard are species likely to invade this site.
*from Ecological Site Description

8.6 Frequency Trend – Pogues Station Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-16	1993/1999	Less Indian ricegrass More needleandthread More bluegrass Less globemallow Less halogeton Less sickle saltbush More bud sagebrush	Static

Key Area	Years Read	Significant Changes	Indicated Trend
DW-10	1993/2008	Less Indian ricegrass Less galleta grass Less squirreltail Less globemallow More halogeton Less winterfat More bud sagebrush	Declining

Key Area	Years Read	Significant Changes	Indicated Trend
DW-74	2003	N/A	

This frequency trend study will be read again in the future.

8.7 Drought Indicator Checklist

A drought check was conducted at Key Area DW-10 in salt desert shrub range on August 21, 2000. Forage vigor and shrub leader growth were below average. The average height of the current year's growth of winterfat was 2" and ricegrass 1.5". The use of the current year's growth of winterfat was 61% and Indian ricegrass 73%. Water source availability was normal. It was observed that the physical condition of livestock was fair. Winterfat was brittle and small rabbitbrush was very droughty. Indian ricegrass plants were dry. Forage vigor and shrub leader growth were below average. The average height of the current year's growth of winterfat was 2" and ricegrass 1.5". The use of the current year's growth of winterfat was 61% and Indian ricegrass 73%.

Drought checks were conducted at Key Areas DW-08, 16, and 44 on March 15, 1999. At DW-08, forage vigor and shrub leader growth were average. The average height of the current year's growth of saltbush was 4" and bottlebrush squirreltail 1". The use of the previous year's growth of saltbush was 44% and Indian ricegrass 84%. The use of the previous year's growth of squirreltail was 78%. Soil moisture depth was 3". Rainfall was below normal for the current year. A little carryover forage was available.

At DW-16, forage vigor and shrub leader growth were average. There was no current growth present on ricegrass or winterfat. The use of the previous year's growth of ricegrass was 76% and winterfat 82%. No carryover forage was available. Soil moisture depth was 2". Rainfall was below normal for the current year.
At DW-44, forage vigor and shrub leader growth were average. There was no current growth present on ricegrass or winterfat. The use of the previous year's growth of ricegrass was 76% and winterfat 54%. Very little carryover forage was available. Soil moisture depth was 2". Rainfall was below normal for the current year.

8.8 Observed Apparent Trend

Key Area DW-16
In July of 1993, observed apparent trend was static (25) at Key Area DW-16. There are no field notes on the observed trend form.

Key Area DW-10
In July of 1993, observed apparent trend was static (24) at Key Area DW-10. Notes indicate a little recent horse & cattle use & a little sheep sign from last grazing year also. Pretty good looking plant community. Lots of shadscale nearby.

9. DUCKWATER ALLOTMENT, SOUTH SAND SPRINGS VALLEY USE AREA

9.1 Key Areas and Rangeland Ecological Sites

Table 9.1-1 South Sand Springs Valley Use Area Key Areas & Rangeland Ecological Sites

Key Area**	Location	Ecological Site	Dominant Species of HCPC*	Soil Mapping Unit
DW-06	T11N R54E S27 SW1/4 SW1/4	Silty 5-8" P.Z. 029XY020NV	Winterfat	3191-Penoyer-Watoopah-Easychair Assoc.
DW-72	T12N R54E S24 SW1/4 NE1/4	Shallow Calcar. loam 8-12" 029XY008NV	Black sagebrush Indian ricegrass needleandthread	3645-Armespan-Clowfin-Peeko Association
DW-73	T11N R54E S26 SE1/4	Loamy 5-8" P.Z. (029XY017NV)	Shadscale Bud sagebrush Indian ricegrass	3644-Armespan-Cliffdown-Candelaria Assoc.

* HCPC = Historic climax plant community

DW-06 occurs on the broad alluvial fan in salt desert shrub range about 2 miles west of Portuguese Mountain.
DW-72 occurs on the alluvial fan in black sagebrush range about 2 miles southerly from Brown Summit Reservoir.
DW-73 occurs on the alluvial fan just west of the main county road running by Portuguese Mountain.

9.2 Licensed Livestock Use

9.2-.1 Duckwater Shoshone Tribe

The Tribe has not licensed cattle use in this use area since approximately 1995. A few Shoshone cattle have strayed into the area during spring, summer, or fall from time to time. This use area was closed to cattle grazing from July 2001 through February 2007 according to an agreement reached between BLM and the Tribe. The agreement stated that the area would be temporarily closed to livestock grazing because of continued degraded forage conditions and limited forage productivity and availability.

9.2-2. Paris Livestock

Paris Livestock submits an after the fact actual use grazing application for sheep grazing in the Duckwater Allotment, and licenses for the entire allotment, not by use area. Paris Livestock sheep use in this use area has varied during the evaluation period 1999 – 2008. Use of the area is dependent on snow availability. Sheep numbers have also varied during the evaluation period. On a typical winter approximately 3000 sheep might spend from 12 to 14 days going south through the area in late January or February and 10 to 12 days going north through the area in March. Two 1650 head sheep bands used the area going south in January, 2009. In the winter of 2007/2008 approximately 3500 sheep used the area.

9.3 Utilization

On April 23, 2008 two KFPM utilization transects were read in the South Sand Springs Valley Use Areas for year long use by herbivores. Transects were read at Key Areas DW- 06 and DW-73. Use of winterfat was 78% and 80% at the two areas. Use of Indian ricegrass was 72% at DW-06. Photographs were taken, and local springs were visited as well. Range notes recorded on the utilization forms included the following:

Bud sagebrush was observed to be increasing significantly in the area of DW-06. No invasive species were present for the current year at DW-06 however cured halogeton & Russian thistle were common from last year. Bud sagebrush was observed to be used less than 2% for the 2007 grazing year. At Key Area DW-73 Orhy in the use cage was of good vigor with cured & green leaves to 12" tall. Winterfat in the use cage also of good vigor to 9" tall (cage not moved in several years). Slight sheep droppings in the area from winter. Heavy wild horse sign was present in the area. This is a forb rich area. Quite a bit of Russian thistle also present. Use of black sagebrush was light or less.

Also on April 23, two transects were read (1 each at DW-06 and DW-73) for current year's use of winterfat and Indian ricegrass from March 1 to date. Current year's use of winterfat was 13% and 9%, while use of Indian ricegrass was 8% and 13%.

Information on forage utilization is also presented in the Drought Indicator Checklist Section below (7.7).

9.4 Ecological Condition Information Including Similarity Index
Ecological condition data from 1992 is presented below.

Table 9.4-1. Ecological Condition Information at DW-06 (South Sand Springs Valley Use Area)

Key Area: DW-06*
Date: 8/4/1992
Range Site: Silty 5-8" P.Z. (029XY020NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	5.1%	5-15%	5%
Squirreltail	ELEL5	8.1%	5-10%	8%
Winterfat	KRLA2	86.9%	60-70%	70%

Similarity Index 83% (climax community based on production). Apparent trend was recorded as declining.
Overall Production: 236 pounds per acre (air dry wt.) without halogeton. 409 pounds per acre with halogeton.
Normal year production is 350 pounds per acres. Unfavorable year production is 200 pounds per acre.
Plant community dynamics: Where management results in abusive livestock use, bottlebrush squirreltail, shadscale, winterfat and Indian ricegrass decrease. With further site degradation, cheatgrass, halogeton, Russian thistle and annual mustards invade the interspaces between shrubs. Halogeton & Russian thistle can become dominant on disturbed sites. This site is easily eroded and gullies may form which can interrupt the overland flow patterns.
*from Ecological Site Description

* Ecological condition studies were also conducted at Key Area DW-06 in 1990 and 1991. These studies exhibit a poor production site, with disturbed soils, grazed severely by wild horses year around.

Photographs from Key Area DW-06 confirm the observation that bud sagebrush has increased significantly while winterfat has decreased significantly over the past several years.

9.5 Frequency Trend – South Sand Springs Valley Use Area

Key Area	Years Read	Significant Changes	Indicated Trend
DW-06	1989/1999	Less Indian ricegrass	Downward
		Less bottlebrush squirreltail	
		More halogeton	
		More cheatgrass	
		Less winterfat	

9.6 Drought Indicator Checklist

Drought checks were also conducted at Key Areas DW-6 and DW-73 in South Sand Springs Valley on April 26, 2001 in conjunction with drought checks in other use areas. At DW-06 forage vigor was below average to average. Shrub leader growth was average. The average height of the current year's growth of winterfat was 3" and ricegrass 1.5". The use of the previous year's growth of winterfat was 80% and Indian ricegrass 88%. Water source availability was normal. At DW-73 forage vigor was average. Shrub leader growth was below average to average. The average height of the current year's growth of winterfat was 1.5" and bluegrass 1". Previous year's use of winterfat was 82%. Water source availability was normal.

Drought checks were also conducted at Key Areas DW-6 and DW-72 in South Sand Springs Valley on August 2, 2000 in conjunction with drought checks in other use areas of the Duckwater Allotment. At DW-06 forage vigor and shrub leader growth were below average. The average height of the current year's growth of winterfat was 5" and ricegrass 2". The use of the current year's growth of winterfat was 36% and Indian ricegrass 60%. Rainfall for the year was below normal and the physical condition of wild horses was normal. At DW-72 forage vigor and shrub leader growth were average. The average height of the current year's growth of ricegrass was 6". The use of the current year's growth of winterfat was 52% and Indian ricegrass 56%. Rainfall for the year was below normal and the physical condition of wild horses was normal. Black sagebrush shrub leaders were green. At DW-73 current year's use of winterfat was 60% and ricegrass 81%.

A drought check was also conducted at Key Area DW-06 on 12/6/2000. Forage vigor and shrub leader growth were average. The average height of the current year's growth of winterfat was 3 - 4". Current year's use of winterfat was 54%. Water source availability was normal. Physical condition of wild horses was normal. Soil moisture depth was from 1 to 12".

Drought checks were also conducted at Key Areas DW-6, DW-72, and DW-73 in South Sand Springs Valley on March 15, 1999. At DW-06, forage vigor and shrub leader growth were below average. No new growth was present on key palatable native plant species. Use of the previous year's growth of winterfat was 80% or higher (severe). Native grasses were grazed to the soil (severe). A lot of wild horse sign was present. No carryover forage was available.

At DW-72, forage vigor and shrub leader growth were below average. The average height of the current year's growth of ricegrass was 1". Use of the previous year's growth of ricegrass was 79% or higher (severe). Winterfat was gone from the range site. Native grasses were grazed to the soil (severe). Wild horse sign was prevalent. No carryover forage was available.

At DW-73, forage vigor and shrub leader growth were below average. No new growth was present on key palatable native plant species. Use of the previous year's growth of winterfat was 88% or higher (severe). Severe horse use evident. No carryover forage was available.

9.7 Observed Apparent Trend

In August 1994, observed apparent trend was downward (9) at Key Area DW-06. Notes from 1994 indicate very dry conditions. Much halogeton invasion. Perennial grasses were almost non-existant. Winterfat was of poor vigor & used about 84% to date.

In August 1999, observed apparent trend was rated downward (14) at Key Area DW-06. Notes from 1999 indicate halogeton, mustard, and burrweed abundant. Indian ricegrass plants small & of poor vigor & infrequent. Bud sagebrush increasing. Bottlebrush squirreltail was small & winterfat of moderate vigor.

10. MONTE CRISTO ALLOTMENT

10.1 Key Areas and Ecological Sites

Table 10.1-1 depicts key areas and their location within the Monte Cristo Allotment as well as the ecological site associated with the key area in native rangeland and dominate soils of each site.

Table 10.1-1.Monte Cristo Allotment Key Areas

Key Area*	Native/ Seeded	Location	Ecological Site	Dominant Species of HCPC	Soil Mapping Unit
MC-1	Native Range	T16N R56E S24 S1/2 NW1/4	Shallow Loam 8-10" P.Z. (028BY080NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread	450--Shabliss-Yody association
MC-2	Seeded	T16N R56E S13 SE1/4 NW1/4	---	---	360--Belmill association
MC-3	Seeded	T16N R56E S13 NE1/4 SE1/4	---	---	360--Belmill association
MC-4	Native Range	T16N R56E S1 NE1/4 SW1/4	Silty 8-10" P.Z. (028BY013NV)	winterfat and Indian ricegrass	173--Tulase-Yody-Heist association
MC-5	Native Range	T16N R57E S18 NW1/4 NW1/4	Gravelly Clay 10-12" P.Z. (028BY086NV)	Wyoming big sagebrush and Thurber's needlegrass	360--Belmill association
MC-6	Native Range	T16N R56E S12 NE1/4 SE1/4	Shallow Loam 8-10" P.Z. (028BY080NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread	450--Shabliss-Yody association

* MC-1 occurs in native sagebrush range in the south portion of the allotment, just east of "the forks".
MC-2 occurs in the Monte Cristo Seeding. MC-3 occurs in the Monte Cristo Seeding.
MC-4 occurs in a winterfat meadow in the northwest portion of the allotment.
MC-5 occurs amid the sagebrush and juniper trees about 1 mile northerly from the Monte Cristobal Well.
MC-6 occurs on the alluvial fan west of the county road about 2 miles northwest from the Monte Cristo Well.
MC-7 occurs amid the sagebrush and juniper trees about 0.6 miles east of the Monte Cristo Well. MC-7 has been studied primarily for utilization thus far.

10.2 Licensed Livestock Use

Over the grazing seasons from 2000 to 2008, cattle active permitted use on the Monte Cristo Allotment was 725 active AUMs. Active permitted use in 1999 was 1,129 AUMs. During this same time period, livestock licensed use ranged from a high of 1,124 AUMs in 1999 to a low of 0 AUMs in 2003 through 2008. Livestock use has varied dependent on available forage due to growing conditions and the needs of the operator. Table 10.2-1 summarizes the licensed use data for this time period.

Table 10.2-1.Monte Cristo Allotment Licensed Use

Grazing Year	Licensed Use (AUMs)	% Licensed Use* of Permitted Use (AUMs)	Grazing Year	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)
1999	1124	100%	2004	0	0%
2000	737	103%	2005	0	0%
2001	724	100%	2006	0	0%
2002	724	100%	2007	0	0%
2003	0	0%	2008	0	0%

* In August 1999, a "Stipulation for Dismissal of Appeals NV-04-95-07 and NV-04-95-08" was reached between Duckwater Cattle Company and BLM. This stipulation placed 400 of 1129 active AUMs of cattle grazing into voluntary non-use. 725 AUMs (rounded number) became the new active permitted use (preference).

Actual use records show that from 1980 to 1996 (18 year period) cattle use ranged from 0 to 1130 AUMs and averaged 441 AUMs per year in the allotment. No use at all was made in 1986 and 1987. Prior to 1999, the grazing permit for cattle grazing on the allotment was for 325 cattle from 5/16 to 5/31 and 237 cattle from 7/1 to 10/31.

10.3 Utilization

Key forage plant method (KFPM) utilization was completed for two native key areas and two key areas within the crested wheat seedings in June, 2008. KFPM was completed at four native key areas on June 11, 2002. Utilization for the Monte Cristo Allotment is summarized in Table 10.3-1.

Table 10.3-1.Monte Cristo Allotment Utilization

Key Area	Key Species	Grazing Year	Utilization	Total
MC-1	Indian ricegrass	2008(C)	slight	5%
MC-2	crested wheatgrass	2008(C)	none	0%
MC-3	crested wheatgrass	2008(C)	slight	3%
MC-4	winterfat	2002(C)	light	24%
	Indian ricegrass	2002(C)	slight	15%
	bottlebrush squirreltail	2002(C)	slight	11%
MC-5	Indian ricegrass	2002(C)	slight	8%
	needleandthread	2002(C)	slight	7%
MC-7	bluebunch wheatgrass	2002(C)	slight	1%
	needleandthread	2002(C)	slight	5%
KA in middle of allotment	Indian ricegrasss	2002(C)	moderate	48%
other	winterfat	2008(C)	moderate	42%*
*100 head of wild horses noted in the area.				

(C) = current year's use.

10.4 Line Intercept Cover Studies

Line intercept cover studies have been conducted at the six key areas on the Monte Cristo Allotment. Table 10.4-1 summarizes the cover data collected at key areas on native rangeland. Data was gathered in June 2008 and June or July, 2003. Table 10.4-2 presents the cover data collected at key areas in seedings.

Table 10.4-1.Monte Cristo Allotment Vegetative Cover on Native Rangeland.

Key Area	Range Site	2003 Existing Vegetative Cover (%)	2008 Percent Litter Cover	2008 Existing Vegetative Cover (%)	ESD Approx. Cover (%)
MC-1	Shallow Loam	12%	16%	16%	10-20%
MC-4	Silty	13%	7%	7%	10-20%
MC-5	Gravelly Clay	16%	20%	19%	20-40%
MC-6	Shallow Loam	10%	17%	21%	10-20%

Table 10.4-2.Monte Cristo Allotment Vegetative Cover on Seedings.

Key Area	Percent Litter Cover	Existing Vegetative Cover (%)
MC-2	27%	26%
MC-3	14%	13%

10.5 Ecological Condition Information Including Similarity Index

Table 10.5-1 to 10.5-4 summarizes data used to calculate similarity index for the Monte Cristo Allotment.

Table 10.5-1.Total Annual Yield and Composition of Monte Cristo Allotment Key Areas

Key Area: MC-1
Date: 06/12/2008
Range Site: Shallow Loamy 8-10" P.Z. (028BY080NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	18%	20-30%	18%
bluegrass	POA	trace	2-5%	---
bottlebrush squirreltail	ELEL5	2%	2-5%	2%
perennial forbs	PHLOX	3%	5-15%	3%
Douglas' rabbitbrush	CHVI8	15%	3%	3%
big sagebrush	ARTR2	63%	25-35%	35%

Similarity Index: 61% (late seral stage). Apparent trend was recorded as improving.
Overall Production: 339 pounds per acre (air dry wt.) Normal year production is about 400 pounds per acre. Unfavorable year production is about 200 pounds per acre.
Potential plant community production is about 55% grasses, 10% forbs, and 35% shrubs.
Current composition is about 20% grasses, 3% forbs, and 78% shrubs.
Plant community dynamics: As ecological condition declines, Wyoming big sagebrush, Douglas' rabbitbrush and Sandberg's bluegrass increase, while Indian ricegrass and needleandthread decrease. Cheatgrass and Utah juniper are the species most likely to invade this site. When Utah juniper occupies this site it competes with other species for available light, moisture and nutrients.
*from Ecological Site Description

In July 2003 MC-01 was producing about 646 pounds per acre (including 32 pounds cheatgrass), with sagebrush producing about 41% of the production, small rabbitbrush 7%, Indian ricegrass 6%, squirreltail 16%, needlegrass 6%, bluegrass 16%, cheatgrass 5%, horsebrush 2%, and phacelia 1%. The area was found to be in late seral condition. Trend was not apparent. Current year's use of needlegrass was 2%, ricegrass 6%.

Table 10.5-2.Total Annual Yield and Composition of Monte Cristo Allotment Key Areas

Key Area: MC-4
Date: 06/11/2008
Range Site: Silty 8-10" P.Z. (028BY013NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
bottlebrush squirreltail	ELEL5	2%	5-10%	2%
winterfat	KRLA2	98%	40-50%	50%

Similarity Index: 52% (late seral stage). Trend was recorded as not apparent.
Overall Production: 343 pounds per acre (air dry wt.). Normal year production is about 500 pounds per acre. Unfavorable year production is about 350 pounds per acre.
Potential vegetation composition is about 30% grasses, 5% forbs, and 65% shrubs.
Current composition is about 2% grasses and 98% shrubs.
Plant community dynamics: As ecological condition declines, bottlebrush squirreltail and shadscale increase as winterfat and Indian ricegrass decrease. With further site deterioration, cheatgrass, halogeton and annual mustards invade the interspace areas between shrub species. On heavily disturbed sites, these annual species, particularly halogeton, become dominant. Soils of this site are easily eroded and gullies often form, interrupting the overland flow patterns. As gullies begin to form, this site grades into the Silty Plain (028BY054NV) or Loamy Fan 8-12" PZ (028BY045NV) site.
*from Ecological Site Description

In July 2003 MC-04 was producing about 738 pounds per acre, with winterfat producing about 86% of the production, Indian ricegrass 2%, and squirreltail 12%. The similarity index was 63 (late seral). No invasive species were present. Trend was not apparent. Current year's use of winterfat was 19%, ricegrass 70%, and squirreltail 68%. Use was primarily by wild horses.

Table 10.5-3.Total Annual Yield and Composition of Monte Cristo Allotment Key Areas

Key Area: MC-5
Date: 06/16/2008
Range Site: Gravelly Clay 10-12" P.Z. (028BY086NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Thurber's needlegrass	ACTH7	12%	20-40%	12%
bottlebrush squirreltail	ELEL5	1%	2%	1%
Sandberg's bluegrass	POSE	1%	2-5%	1%
fleabane	ERIGE2	9%	2-5%	5%
long-leaf phlox	PHLO2	1%	2%	1%
Wyoming big sagebrush	ARTRW	77%	20-30%	30%

Similarity Index: 50% (mid seral stage). Trend was recorded as not apparent.
Overall Production: 392 pounds per acre (air dry wt.). Normal year production is about 600 pounds per acre. Unfavorable year production is about 350 pounds per acre.
Potential vegetative composition is about 55% grasses, 10% forbs, and 35% shrubs and trees.
Current composition is about 14% grasses, 10% forbs, and 77% shrubs.
Plant community dynamics: As ecological condition declines, Wyoming big sagebrush, Douglas' rabbitbrush and bottlebrush squirreltail increase, while Thurber's needlegrass and Indian ricegrass decrease. Cheatgrass and Utah juniper are the species most likely to invade this site. At the upper limit of this site, singleleaf pinyon will begin mixing with the Utah juniper.
*from Ecological Site Description

In June 2003 MC-05 was producing about 610 pounds per acre, with sagebrush producing about 76% of the production, native grasses about 15%, forbs about 3%, and cheatgrass about 6%. The similarity index was 38 (mid seral). Trend was downward. Current year's use of ricegrass was 9%, needleandthread 1%. Use was primarily by wild horses.

Table 10.5-4.Total Annual Yield and Composition of Monte Cristo Allotment Key Areas

Key Area: MC-6
Date: 06/17/2008
Range Site: Shallow Loamy 8-10" P.Z. (028BY080NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
bottlebrush squirreltail	ELEL5	1%	2-5%	1%
Sandberg's bluegrass	POSE	1%	2-5%	1%
phlox	PHLOX	trace	2%	---
Indian ricegrass	ACHY	20%	20-30%	20%
Wyoming big sagebrush	ARTRW	78%	25-35%	35%

Similarity Index: 57% (late seral stage). Apparent trend was recorded as improving.
Overall Production: 304 pounds per acre (air dry wt.). Normal year plant production is about 400 pounds per acre. Unfavorable year production is about 200 pounds per acre.
Potential vegetative composition is about 55% grasses, 10% forbs, and 35% shrubs and trees.
Current composition is about 22% grasses, 0% forbs, and 78% shrubs.
Plant community dynamics: As ecological condition declines, Wyoming big sagebrush, Douglas' rabbitbrush and Sandberg's bluegrass increase, while Indian ricegrass and needleandthread decrease. Cheatgrass and Utah juniper are the species most likely to invade this site. When Utah juniper occupies this site it competes with other species for available light, moisture and nutrients.
*from Ecological Site Description

In July 1999 MC-06 was producing about 602 pounds per acre including 218 pounds cheatgrass or 384 pounds per acre without cheatgrass. Sagebrush produced about 75% of the native production, native grasses about 21%, and forbs about 3%. The plant community was in mid seral condition. Cheatgrass was abundant. Trend was downward. Current year's use of ricegrass was 10%, needleandthread 4%.

10.6 Current Composition and Production of Seeded Areas

Key areas within the seeded portions of the Monte Cristo Allotment were inventoried to determine the current percent composition by weight on an air dry basis. This was completed using a double sampling technique. Current composition and production data collected in 2008 is summarized in Table 10.6-1.

Table 10.6-1.Current Composition and Production of Seeded Areas on Monte Cristo Allotment

Key Area	Plant Common Name	Plant symbol	Current Production (lbs./ac.; air dry wt.)	Current % Composition by Weight (air dry)
MC-2	crested wheatgrass	AGCR	234	34%
	needleandthread	ELYLE	trace	---
	bluegrass	POA	3	0%
	phlox	PHLOX	2	0%
	Wyoming big sagebrush	ARTRW	444	65%
		Total:	**683**	
MC-3	crested wheatgrass	AGCR	103	17%
	needleandthread	HECO26	21	4%
	bluegrass	POA	2	0%
	Indian ricegrass	ACHY	8	1%
	cheatgrass	BRTE	trace	---
	Columbia needlegrass	ACNE9	1	0%
	cryptantha	CRYPT	1	0%
	groundsel	PAMU11	1	0%
	phlox	PHLOX	2	0%
	desert parsley	LOMAT	trace	---
	milk vetch	ASTRA	trace	---
	Wyoming big sagebrush	ARTRW	467	77%
	Douglas' rabbitbrush	CHVI8	3	1%
		Total:	**609**	

10.7 Frequency Trend Data – Monte Cristo Allotment

Key Area	Years Read	Significant Changes	Indicated Trend
DW-06	1991/1999	More bluegrass	Static
		More bottlebrush squirreltail	
		More native forbs	
		More cheatgrass	

10.8 Drought Indicator Checklist

Drought Indicator Checklists were completed in the Monte Cristo Allotment on June 11, 2002.

In June 2002, at MC-04 (winterfat dominant salt desert shrub), forage vigor was average. Shrub leader growth was below average to average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was below normal, & water source availability was below normal. Current year's use to date of winterfat was 24% while that of ricegrass was 15%. Ricegrass was observed to be of poor vigor, producing no seed, with leaves averaging 3".

In June 2002, at MC-05 (sagebrush site), forage vigor and shrub leader growth were average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was below normal & water source availability was below normal. Current year's use to date of ricegrass was 8% while that of needleandthread was 7% (use by wild horses, no cattle use yet). Cheatgrass was common to the area. The site is being encroached by pinyon/juniper trees.

In June 2002, at MC-07 (sagebrush site), forage vigor and shrub leader growth were average. The physical condition of wild horses, wildlife, and livestock was normal. Rainfall for the year was below normal & water source availability was below normal. Current year's use to date of bluebunch wheatgrass, needleandthread, and bitterbrush was all less than 5%. The area was forb rich with a diversity of forbs present. A rocky stable soil was noted and few invasive plants were present.

10.9 Observed Apparent Trend

Observed apparent trend was static (25 – upper end of static) at DW-01 on July 23, 1997. Current year's use to date of Indian ricegrass was 70%. Fewundesirable plant species were present. Soils were stable. All cow use, little wild horse use.

Observed apparent trend was static (24 – upper end of static) at DW-01 on July 1, 1994. Good native grass production was observed. An abundance of small rabbitbrush seedlings were observed. Increased forbs appeared to be sprouting.

11. WILD HORSE DATA

The Pancake Wild Horse Herd Management Area (HMA) was established by the Ely District Record of Decision (ROD) and approved Resource Management Plan (RMP) signed August 20, 2008. The ROD-RMP addressed managing the wild horse population within this HMA within a range of 240 - 493 wild horses. The Pancake HMA (855,000 acres) consists of the former Sand Springs East (386,776 acres) and Monte Cristo (369,914) Herd Management Areas. That portion of the HMA within the Duckwater Allotment totals approximately 700,000 acres. The population estimate for the Pancake HMA in January 2009 was 897 animals. A census flight conducted in May 2008 resulted in a count of 743 wild horses.

Wild horse gathers in Nevada have been limited beginning in 2007. The Wild Horse and Burro Program has had limited funding for gathers, because over 30,000 wild horses are currently being kept in holding facilities. Beginning in 2007, most wild horse gathers have been emergency gathers based on resource and animal condition and the availability of waters. The gathers are prioritized by a State office team in coordination with Washington Office tours of herd management areas. The Pancake HMA is currently on an Ely District list of six "HMAs with Escalating Problems."

A wild horse census summary is provided below for the Pancake HMAs:

Table 11.1 Census Summary for the Pancake HMA from 1995-2008

Date	HMA	Horses	Foals	Total
1994	Sand Springs East	373	93	466
	Monte Cristo & WHTs	581	116	697
1997	Sand Springs East	437	82	519
1998	Sand Springs East	616	108	724
	Monte Cristo & WHTs	515	111	626
1999	Monte Cristo & WHTs	359	96	455
2000	Sand Springs East	275	52	327
	Monte Cristo & WHTs	377	52	429
2001	Monte Cristo & WHTs	751	85	836
2005	Sand Springs East	295		
	Monte Cristo & WHTs	286		
2008	Sand Spring East	476		476
	Monte Cristo & WHTs	272		272

A wild horse removal summary is provided below for the Sand Springs East and Monte Cristo HMAs:

Table 11.2 Wild Horse Removal Summary – Ely District BLM – Sand Springs East HMA

Removal Date	Animals Removed	Notes
July 1987	408	
July 1995	701*	
February 1999	268**	Fertility
September 2000	200	Emergency (drought)
January 2006	227	
Total	1804	

* 963 wild horses were captured

** 530 wild horses were captured

Table 11.3 Wild Horse Removal Summary – Ely District BLM – Monte Cristo HMA

Removal Date	Animals Removed	Notes
July 1985	185	
September 1994	118	
August 1995	749*	
February 1999	311**	Fertility
December 2002	586	
January 2006	220	
Total	2169	

* 946 wild horses were captured

** 538 wild horses were captured

12. PRECIPITATION DATA

The following precipitation data by year is presented for the Ely Weather Station (Yelland Field) as summarized by the National Oceanic and Atmospheric Administration. The precipitation totals are for **crop year precipitation**, or that moisture (including snow) measured from September through June. This is effective moisture for plant growth. The average crop year precipitation for the Ely Station for the thirty year period 1977 – 2006 is 8.44 inches. Nine of the eleven years listed below are below this average. This represents drought conditions.

Table 12-1. Crop Year Precipitation – Ely Station

Year	Crop Year Precipitation
1997	7.83
1998	10.00
1999	7.18
2000	6.70
2001	5.26
2002	4.42
2003	6.88
2004	5.45
2005	12.20
2006	8.32
2007	5.62
2008	4.14

The average crop year precipitation for the Blue Eagle Ranch Station (Hanks) for the 13 year period 1978 - 1990 is 8.73 inches. The Blue Eagle Station is in Railroad Valley, a few miles south of the Duckwater Allotment.

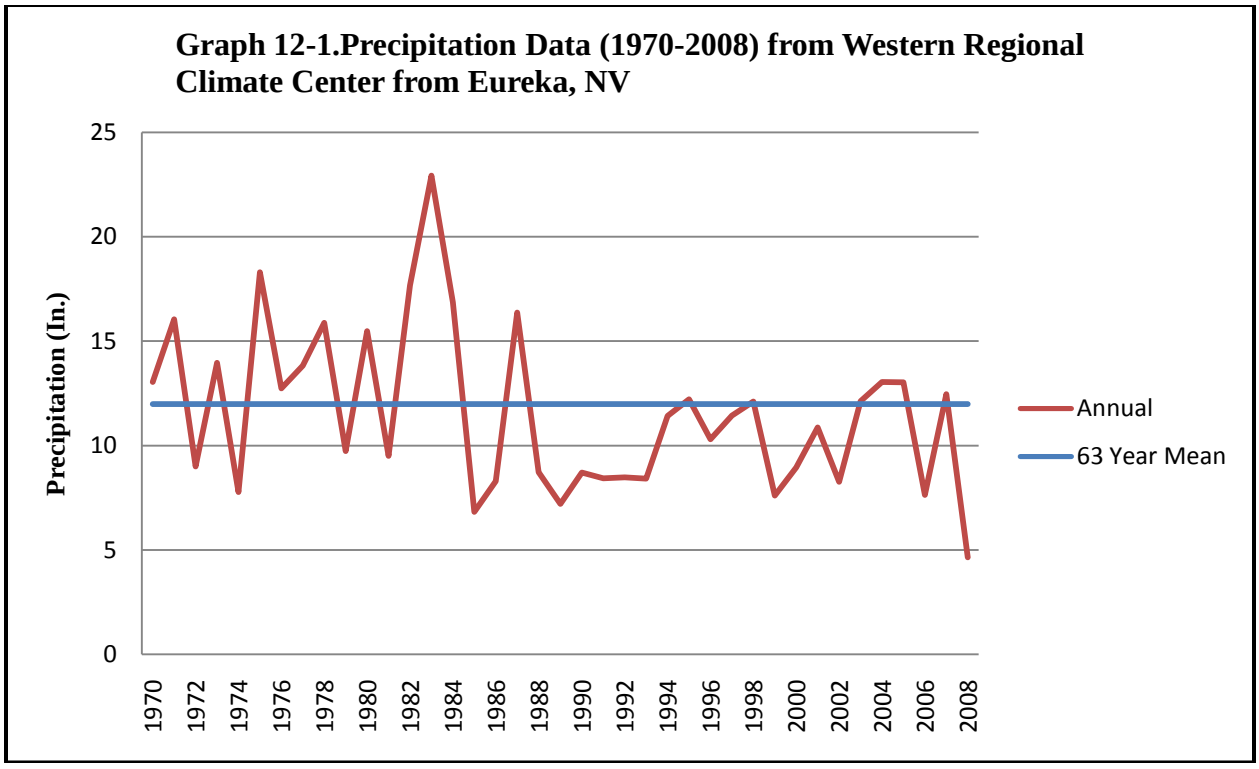
The average crop year precipitation for the Snowball Ranch Station (McKay) for the 25 year period 1966 - 1990 is 7.01 inches. The Snowball Ranch Station is in Little Smoky Valley, on the west edge of the Duckwater Allotment (Soil Survey of Nye County, Nevada, Northeast Part 2002).

Annual precipitation greatly influences growing condition of forage species and is often correlated to available forage. Historical climate data from the Western Regional Climate Center at the Eureka, Nevada weather station provides a representation of the annual precipitation on the Monte Cristo Allotment. Table 12-2 and Graph 12-1 summarize annual precipitation data collected since 1970. The 63 year mean precipitation for this station is 11.99 inches.

Table 12-2.Western Regional Climate Center Precipitation Data from Eureka, NV

YEAR	ANNUAL PRECIP. (inches)	YEAR	ANNUAL PRECIP. (inches)	YEAR	ANNUAL PRECIP. (inches)
1970	13.04	1983	22.92	1996	10.30
1971	16.05	1984	16.86	1997	11.44
1972	9.00	1985	6.82	1998	12.11
1973	13.96	1986	8.29	1999	7.60
1974	7.78	1987	16.36	2000	8.96
1975	18.30	1988	8.72	2001	10.86
1976	12.73	1989	7.21	2002	8.27
1977	13.83	1990	8.71	2003	12.12
1978	15.88	1991	8.44	2004	13.04
1979	9.74	1992	8.48	2005	13.02
1980	15.48	1993	8.41	2006	7.63
1981	9.50	1994	11.42	2007	12.46
1982	17.66	1995	12.21	2008	4.65

Graph 12-1.Precipitation Data (1970-2008) from Western Regional Climate Center from Eureka, NV



13. Vegetation Production, Ecological Processes, and Vegetation Distribution

Vegetation Production & Precipitation – all use areas of the Duckwater Allotment

The crop year precipitation table for the Ely Station shows that of the last 12 years, 10 have been below the long term norm of 8.44 inches for the crop year (September – June). Many of the years have been far below normal. This represents drought conditions during which native plant community production is generally unfavorable. The U.S. Drought Monitor (National Drought Mitigation Center – NDMC) shows eastern Nevada in a severe drought (D2) on February 3, 2009. This severe intensity classification (D2) has occurred for quite a while and has been common in eastern Nevada.

Ecological Processes

Direct measures of the status of ecological processes are difficult or expensive to measure due to the complexity of the processes and their interrelationships. Therefore, biological and physical attributes are often used as indicators of the functional status of ecological processes and site integrity. Based on the generally negative vegetative attributes of the term permit renewal area as presented by monitoring data, the hydrologic cycle, nutrient cycle, and energy flow are barely being maintained. In addition to range monitoring data, qualitative observations and professional judgment indicate ecological processes are less than desired for the vegetative communities. Ecological processes are generally not within the normal range of variability for the rangeland ecological sites.

Vegetation Distribution

Professional observation as well as soil mapping unit data and ecological site descriptions indicates vegetation distribution (patchiness, corridors) to be appropriate in the Duckwater Allotment as a whole. The vegetation composition changes along the elevation gradients and plant communities are separated by washes or rolling hills and canyons in this allotment. Elevations vary from about 6,000 feet to 8,500 feet. Topographic diversity is complex. There is a mosaic and "mix" of plant communities and ecological sites, including sites dominated by winterfat, black sagebrush, sickle saltbush, shadscale, Wyoming big sagebrush, basin big sagebrush, black greasewood or Bailey greasewood, small rabbitbrush, and pinyon and juniper trees. Differences in topography, slope, exposure, parent material, and soils all contribute to diversity in the area. There are many travel corridors present for grazing animals between the hills. Escape cover is present for grazing animals in these areas.

14. Professional Observations – Salt Desert Shrub Range

On the deserts, where amount and season of precipitation are so erratic, years of good seed production are infrequent for most species. Years favorable for seedling establishment are also infrequent. The circumstance of a good seed year followed by a good establishment year is a rare occurrence. Even rarer for rangeland ecological sites that are in poor to fair condition with disturbed or sensitive soils, little to no herbaceous understory, inappropriate native vegetation cover, and invasive species.

Herbage removal is most injurious to native grasses and forbs during the middle part of the growing period, between boot stage and the maturation of the fruit. As carbohydrate reserves are depleted during this period plants become susceptible to injury or mortality. The critical growing period ends earlier with drier drought years (spring, early summer). Grazing during this

period is also detrimental to plants because of the undependability of sufficient soil moisture for plant growth and recovery after being grazed.

The highest and most valuable use of salt desert shrub range is winter range for livestock. The nutritional quality of this range type is suited for animal maintenance during the winter period.

15. RANGELAND MEMORANDUMS & OTHER DATA

Numerous rangeland memorandums have been prepared regarding rangeland conditions, range tours, and meetings with grazing permittees since 1991. Many memos have been prepared regarding coordination with the Duckwater Shoshone Tribe concerning grazing. The Tribe and BLM have generally not agreed on proper stocking levels and season of use in the allotment, and this is reflected in the memos. Heavy and severe grazing use on key forage species by cattle, wild horses, or both is also documented in these memos. Among the more relavent of these memos are the following, in chronological order:

4/7/1997 – Subject: Range memo. Documents heavy and severe use of the forage resource by wild horses in the Bull Creek & Green Springs Use Areas of the Duckwater Allotment. Observations about drought and vegetation condition are also included.

3/11/1999 – Subject: Range memo & record of field tours. BLM received a request from the Tribe to turn out cattle on an earlier date than called for in the 1995 grazing decision (3/15 rather than 5/1. Conclusions of monitoring data gathered in the North Sand Springs Use Area were that the area definitely needs range rest.

11/29/1999 – Subject: Range condition in the north portion of Little Smoky Valley
This memo details heavy use of limited perennial bunchgrass by wild horses, negligible use by sheep, and no use by cows. It discusses a severe downward trend, inappropriate composition, invasive species, and the need to modify the overadjudicated cattle permit. It discusses the need to assess the Standards for Rangeland Health. It predicts the need to gather horses on an emergency basis, which became reality in September 2000.

1/4/2000- Subject: Duckwater Shoshone Tribe Range Use &Rehabilitation Plan. This plan outlined current goals for the Tribe's range use & listed potential range improvements.

8/30/2000 – Subject: Range memorandum & record of field tour. Heavy and severe use of Indian ricegrass was indicated in Tribal grazing areas. Some tribal members wanted to continue grazing into fall however BLM recommended no fall turnout.

12/12/2000- Subject: Range memo & record of meeting. The tribal range consultant agreed the the Duckwater Allotment was overgrazed and understood the salt desert shrub range in poor or fair condition was a limiting factor.

1995 -2001 – Subject: Negotiations/Monitoring/Agreements/Meetings/Ely Field Office BLM & Duckwater Shoshone Tribe

This 17 page record documents coordination between the BLM and Tribe on grazing issues. Various meetings and range tours are mentioned. Heavy and severe use of key forage species is

documented. During a field tour with the Tribe's range management consultant in January 2001 the consultant indicated that she agreed the rangelands of the Duckwater Allotment were overgrazed and that she would encourage the Tribe to establish a plan to improve reservation pastures as an alternative to spring grazing on public rangelands.

4/13/2001 – Subject: Range memo & record of conference call. BLM drafted a grazing agreement for 600 cattle for the 2001 grazing year. The Tribe indicated a need to graze 842 cattle + 55 bulls.

7/20/2001- Subject: Range memo & record of field tour. Looking for potential vegetation conversion areas in "critical watershed" as identified by the Duckwater Project Plan of 1971.

9/4/2001- Subject: tribal letter to James Perkins. The Tribe would like to implement 30,000 acres of vegetation treatment projects in their use areas, among other issues.

9/13/2002 – Subject: Range memo & record of field tour. Tribe licensed for 755 cattle this year & removed the cows by September 1. Utilization was heavy & severe throughout the areas this year.

1/28/2003 – Subject: Record of contact with the Tribe concerning drought.

7/21/2003 – Subject: Range memo & record of conversation. Regarding prioritizing range improvement projects.

7/27/2004 – Subject: Range memo & record of conversation. The cattle keep coming home early.

16. GRAZING AGREEMENT - DUCKWATER CATTLE COMPANY

BLM and Duckwater Cattle Company coordinated on a draft grazing agreement in 2005 after an assessment of rangeland monitoring data found that Standards and Guidelines for Rangeland Health were not being achieved on the Bull Creek Use Area. Livestock use was identified as a causal factor in failing to achieve the Standards. The purpose of the agreement was to modify the terms and conditions of the current ten year grazing permit which was due to expire on June 8, 2005. BLM and Duckwater Cattle Company met on April 12, 2005 and May 5, 2005 to discuss the needed changes in livestock management practices. The agreement was a result of agreed upon changes discussed at the meetings. The agreed upon changes were a continuation of efforts to achieve proper utilization levels, maintain or improve rangeland cover and productivity, and to achieve or make progress towards achievement of the Grazing Standards.

The agreement was never signed or implemented. The grazing permit was renewed on June 9, 2005 for a ten year period with no changes to livestock management practices. Duckwater Cattle Company requested a new range specialist while the agreement was being developed. BLM granted the request and the supervisory range management specialist took over admistrative duties and coordination with Duckwater Cattle Company on grazing. The draft grazing agreement is available for review in the Ely District Office.

Appendix II
Grazing Permit Terms and Conditions

Terms and Conditions of Authorized Use – Paris Livestock – Duckwater Allotment

In accordance with 43 CFR 4130.3-1, sheep grazing use would be authorized as follows, with no fundamental changes to terms and conditions of the existing permit. These terms and conditions would be included in the term grazing permit for Paris Livestock for a period not to exceed ten years.

The number and kind of livestock, season-of-use and permitted use will be as follows on the Duckwater Allotment:

Allotment/ Pasture	Livestock Number & Kind	Period of Use	Permitted Use (AUMs)	Type Use
Duckwater Allotment	1572 S 1122 S	12/15 – 3/31 1/1 – 3/31	1106 664 Total: 1770	Active Active

Terms and Conditions:

In accordance with 43 CFR 4130.3-2, the following terms and conditions will be included in the grazing permit for Paris Livestock in the Duckwater Allotment:

1,106 AUMs of authorized sheep use with a season of use from 12/15 – 03/31 will be used in four use areas, as follows:

Bull Corner/Poison Patch Use Area Pancake East Bench/Duckwater Valley Use Area
South Sand Springs Valley Use Area North Sand Springs Valley Use Area

664 AUMs of authorized use with a season of use from 01/01 – 03/31 will be used in the following four use areas:

Bull Corner/Poison Patch Use Area Pogues Station Use Area
Little Smoky Valley Use Area Pancake East Bench/Duckwater Valley Use Area

In the Bull Corner/Poison Patch Use Area, Paris Livestock will graze lands along the main Poison Wash (Road 4106) and west of the wash.

Sheep will not be trailed in winterfat flats or bottoms. Sheep bedding grounds will be located a minimum of ½ mile from winterfat flats or bottoms. Sheep camps will be moved at least every seven days. No two sheep camps will locate in the same area in a grazing season. Sheep camps

and bedding grounds will be located a minimum of ¼ mile from springs. If sheep must water at springs, they must move to and from the area in a timely manner.

In the Pancake East Bench/Duckwater Valley Use Area, sheep grazing will not be concentrated east of the Big Louie Road, so as not to conflict with cattle grazing. In the South Sand Springs Valley Use Area, sheep use will not be concentrated in the winterfat flats or stringer meadows on the valley bottom and lower benches but will be distributed to the west slopes of the Pancake Mountains on the east side of the valley or the Dry Lake Hills on the west side of the valley.

Allotment Summary (AUMs)

Allotment	Active AUMs	Suspended AUMs	Grazing preference
00701 Duckwater	1770	1768	3538

Duckwater Allotment - Allowable Use Levels – all Herbivores

1. An allowable use level will be established as 40% of the current year's growth by weight for any spring use (3/1 – 5/31) of the key native cool season perennial bunchgrass species Indian ricegrass, needleandthread, bluebunch wheatgrass, or bottlebrush squirreltail (or other cool season native perennial bunchgrass determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment. An allowable use level will be established as 50% of the current year's growth by weight for yearlong use of these species. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
2. An allowable use level will be established as 35% of the current year's growth by weight for any critical growing season use (generally 3/1 – 4/15) of the key shrub winterfat. An allowable use level will be established as 50% of the current year's growth by weight for any total season spring use (3/1 – 5/31) of the key shrubs winterfat, sickle saltbush, black sagebrush, four wing saltbush, (or other shrub determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment.
3. An allowable use level will be established as 60% of the current year's growth by weight for winterfat, black sagebrush, sickle saltbush, four wing saltbush, (or other appropriate shrub) for fall/winter grazing in any pasture evaluated by this SD in the Duckwater Allotment. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
4. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

Terms and Conditions of Authorized Use – Thomas and Ellen Gardner – Duckwater Allotment

In accordance with 43 CFR 4130.3-1, sheep grazing use would be authorized as follows, with no fundamental changes to terms and conditions of the existing permit. These terms and conditions would be included in the term grazing permit for Thomas and Ellen Gardner for a period not to exceed ten years.

The number and kind of livestock, season-of-use and permitted use will be as follows on the Duckwater Allotment:

Allotment/ Pasture	Livestock Number & Kind	Period of Use	Permitted Use (AUMs)	Type Use
Duckwater Allotment	2241 S 2241 S 622 S 622 S	11/01-02/28 03/01-04/15 01/01-02/28 03/01-03/31	1768 678 241 127*	Active Active Active Active

* Active permitted use in the Duckwater Allotment native range for sheep grazing totals 2814 AUMs.

Terms and Conditions:

In accordance with 43 CFR 4130.3-2, the following terms and conditions will be included in the grazing permit for Thomas and Ellen Gardner in the Duckwater Allotment:

Sheep will not be trailed in winterfat flats or bottoms. Sheep bedding grounds will be located a minimum of 1/2 mile from winterfat flats or bottoms. Sheep camps will be moved at least every seven days. No two sheep camps will be located in the same area in a grazing season. Sheep camps and bedding grounds will be located a minimum of ½ mile from springs. If sheep must water at springs, they must move to and from the area in a timely manner.

In the Pancake East Bench/Duckwater Valley Use Area, sheep grazing will not be concentrated east of the Big Louie Road, so as not to conflict with cattle grazing.

In the Bull Corner/Poison Patch Use Area, sheep grazing will occur in lands along the main Poison Wash and west of the wash (Road 4006). Sheep herding will not be concentrated in the main Poison Wash but will be distributed throughout the use area.

In the Little Smoky Valley Use Area, sheep herding will not be concentrated in the winterfat flats or benches to the northwest of Moody Mountains nor in Big Fault Wash, Snowball Creek Wash, Cockalorum Wash, or other major drainages running west to east, in order to allow rest for severely degraded rangelands.

The permittee is required to perform normal maintenance on the range improvements that have been issued through approved cooperative agreements or section 4 permits.

Allotment Summary (AUMs)

Allotment	Active AUMs	Suspended AUMs	Grazing preference
00701 Duckwater	2814	0	2814

Duckwater Allotment - Allowable Use Levels – all Herbivores

1. An allowable use level will be established as 40% of the current year's growth by weight for any spring use (3/1 – 5/31) of the key native cool season perennial bunchgrass species Indian ricegrass, needleandthread, bluebunch wheatgrass, or bottlebrush squirreltail (or other cool season native perennial bunchgrass determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment. An allowable use level will be established as 50% of the current year's growth by weight for yearlong use of these species. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
2. An allowable use level will be established as 35% of the current year's growth by weight for any critical growing season use (generally 3/1 – 4/15) of the key shrub winterfat. An allowable use level will be established as 50% of the current year's growth by weight for any total season spring use (3/1 – 5/31) of the key shrubs winterfat, sickle saltbush, black sagebrush, four wing saltbush, (or other shrub determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment.
3. An allowable use level will be established as 60% of the current year's growth by weight for winterfat, black sagebrush, sickle saltbush, four wing saltbush, (or other appropriate shrub) for fall/winter grazing in any pasture evaluated by this SD in the Duckwater Allotment. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
4. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

Terms and Conditions of Authorized Use – Duckwater Cattle Company
Monte Cristo Allotment

In accordance with 43 CFR 4130.3-1, cattle grazing use would be authorized as follows. These terms and conditions would be included in the term grazing permit for Duckwater Cattle Company for a period not to exceed ten years. There would be no fundamental changes to the existing permit, which is carried forward from the Stipulation for Dismissal of Appeals dated August 30, 1999.

The number and kind of livestock, season-of-use and permitted use will be as follows on the Monte Cristo Allotment:

Allotment/ Pasture	Livestock Number & Kind	Period of Use	Active Use (AUMs)	Voluntary Non-Use (AUMs)	Type Use
Monte Cristo	245 C	6/21 – 9/18	725	400	Active

Terms and Conditions:

In accordance with 43 CFR 4130.3-2, the following terms and conditions will be included in the grazing permit for Duckwater Cattle Company in the Monte Cristo Allotment:
1. Up to 350 cattle may be placed in the allotment, provided, however, that actual use will not exceed 725 AUMs without prior authorization from BLM.
2. In addition to 725 AUMs active use, approximately 394 cattle are held on the allotment seeding one night in June before being moved to the Forest Service Treasure Hill Allotment. In fall, these cattle are gathered off the Treasure Hill Allotment to the Monte Cristo Allotment in September (dates vary), then moved out of Monte Cristo. The well will be turned off and the trough drained to encourage the cattle to move south, off the allotment. No individual cow entering the allotment during this gathering process will stay on the allotment more than 4 days.
3. Duckwater Cattle Company will be billed on an actual use basis for livestock use in the Monte Cristo Allotment after the end of the grazing season.

Monte Cristo Allotment – Allowable Use Levels – all Herbivores

1. An allowable use level will be established as 60% of the current year's growth by weight for summer use of crested wheatgrass in the Monte Cristo Seeding. Utilization will be measured at established key grazing areas or other sites representative of the grazing patterns in the seeding.
2. An allowable use level will be established as 50% of the current year's growth by weight for the key species Indian ricegrass, needleandthread, and winterfat in the native pasture of the Monte Cristo Allotment. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.
3. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

Allotment Summary (AUMs)

Allotment	Active Use	Suspended Non-Use	Voluntary Nonuse	Total Permitted Use
00614 Monte Cristo	729	0	400	1,129

Terms and Conditions of Authorized Use – Duckwater Cattle Company
Duckwater Allotment

In accordance with 43 CFR 4130.3-1, cattle grazing use would be authorized as follows. These terms and conditions would be included in the term grazing permit for Duckwater Cattle Company for a period not to exceed ten years.

The number and kind of livestock, season-of-use and permitted use will be as follows on the Duckwater Allotment:

Use Area	Livestock Number & Kind	Period of Use	Active Use (AUMs)	Voluntary Non-Use (AUMs)	Type Use
Bull Creek	400 C	03/01 – 03/14	184	0	Exchange of Use
Pancake East Bench	400 C	03/01 – 03/14	184	0	Exchange of Use
Bull Creek	550 C	03/15 – 05/01	868	763	Active
Private Lands		05/02 – 05/08			
Green Springs	550 C	05/09 – 06/20	778	+15*	Active
Pancake East Bench	54 S	06/01 – 11/30	65	0	Active
Forest Service and/or Monte Cristo Allotment		06/21 – 09/18			
Green Springs	228 C	09/19 – 09/30	90	42	Active
Private		10/1 – 11/14			
Bull Creek	330 C	11/15 – 01/31	846	0	Active
Bull Corner/ Poison Patch	322 C	11/15 – 01/31	826	0	Active
Pancake East Bench	43 C	11/15 – 01/31	111	0	Active
Private Lands		02/01 – 02/14			
Bull Creek	400 C	02/15 – 02/28	184	0	Exchange of Use
Pancake East Bench	400 C	02/15 – 02/28	184	0	Exchange of Use

* This change results in a 15 AUM increase to the Green Springs Use Area for spring/summer grazing.

Terms and Conditions:
In accordance with 43 CFR 4130.3-2, the following terms and conditions will be included in the grazing permit for Duckwater Cattle Company in the Duckwater Allotment:

1. Grazing will be in accordance with the 2009 Livestock Grazing Management Agreement between Duckwater Cattle Company and the Egan Field Office, BLM. This is a five year agreement. Following the five year period, a new agreement will be issued. Adjustments may include changes to voluntary non-use, period-of-use, stocking levels, areas-of-use or other grazing management practices. If adjustments are needed a new term permit may be issued.
2. The Bull Creek/North Railroad Valley Use Area and the eastern portion of the Duckwater Hills Use Area will be managed as one unit and commonly referred to as the Bull Creek Use Area.
3. For a period of five year, 790 AUMs of cattle use will be in voluntary non-use. Following the expiration of this agreement, voluntary non-use will be re-evaluated based on monitoring data collected throughout the term of the agreement.
4. Livestock will be gathered into Bull Creek Private Land before going from Bull Creek Use Area into Green Springs Use Area. The permitee will have approximately 7 days to gather off Bull Creek, during which time the cattle will be held on private lands.
5. When cattle are removed from Green Springs, they are taken to Green Springs Private Lands. Trail permits may be authorized, over and above the Active Preference, to drive cattle from Green Springs Private, through Green Springs Use Area, to Monte Cristo Allotment, Forest Service Allotments, and/or other private lands.
6. The 09/19 to 09/30 timeframe is that in which cattle are gathered off the Forest Service and Monte Cristo Allotments, bunched, and removed to private lands. Within this total timeframe, any one group of cattle will not be in the Green Springs Use Area more than five days. Therefore the computation of AUMs is for 550 cattle for 5 days. Trail permits may be authorized, over and above the Active Preference, to drive cattle from private lands, through the Duckwater Allotment, to other private lands (generally between 09/20 and 10/10).
7. One or more of the following grazing management options can be applied on an annual basis, if appropriate. These options are to address current range conditions on the Bull Creek Use Area. The annual application of these options will be discussed and agreed upon cooperatively with Duckwater Cattle Company and BLM range staff. Other viable options that arise may also be implemented to achieve desirable range conditions.
    - Option 1—Extend winter use in the Bull Corner/Poison Patch Use Area up to one month in order to delay spring turn out by the same. This would include flexibility in the dates of the Exchange of Use Agreement. When spring turn out is delayed, livestock may stay in the Bull Creek Use Area through May 15.
    - Option 2—Rotate use between the northern and southern portions of the Bull Creek Use Area holding cattle with water.
8. During spring use on the Bull Creek Use Area, cattle will not be permitted to use within one mile of the unfenced private lands which are under the Exchange of Use Agreement.
9. Water will be hauled, when feasible, to the agreed upon locations in the Green Springs Use Area to sites within two miles of the northern boundary with the Monte Cristo Allotment to facilitate livestock distribution. Existing sites will be used or additional sites may be identified through coordination, cooperation, and consultation by the BLM

and the permitee. If other dependable water sources are developed in this area, water hauling will no longer be necessary.

10. Water will be hauled to the agreed upon locations in the Bull Corner/Poison Patch Use Area to facilitate livestock distribution. Existing sites will be used or additional sites may be identified through coordination, cooperation, and consultation by the BLM and the permitee.
11. Locate water haul sites at least ½ mile away from winterfat dominated sites, riparian areas, cultural sites, and special status species locations. Placement will be base on site-specific assessment and characteristics.
12. To improve livestock distribution, the placement of mineral or salt supplements will be a minimum distance of ½ mile from water sources. These supplements will also be placed no closer than ½ mile from riparian areas, sensitive sites, populations of sensitive species, and cultural resource sites as well as at least 1 mile from sage grouse leks. Use of nutritional supplements (not forage) is encouraged to improve the ability of livestock to utilize forage and to improve livestock distribution across the allotment.
13. Grazing will also be in accordance with the Northeast Great Basin Area Standards and Guidelines.
14. Exchange of use will continue on the Bull Creek Use Area and the Pancake East Bench Use Area. During this time, cattle will be fed full daily forage requirements of hay and supplement on unfenced private lands adjacent to the home ranch. Cattle will be authorized access to public lands on an Exchange of Use basis, to spread out and calve on drier ground.

Duckwater Allotment - Allowable Use Levels – all Herbivores

1. An allowable use level will be established as 40% of the current year's growth by weight for any spring use (3/1 – 5/31) of the key native cool season perennial bunchgrass species Indian ricegrass, needleandthread, bluebunch wheatgrass, or bottlebrush squirreltail (or other cool season native perennial bunchgrass determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment. An allowable use level will be established as 50% of the current year's growth by weight for yearlong use of these species. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.

2. An allowable use level will be established as 35% of the current year's growth by weight for any critical growing season use (generally 3/1 – 4/15) of the key shrub winterfat. An allowable use level will be established as 50% of the current year's growth by weight for any total season spring use (3/1 – 5/31) of the key shrubs winterfat, sickle saltbush, black sagebrush, four wing saltbush, (or other shrub determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment.

3. An allowable use level will be established as 60% of the current year's growth by weight for winterfat, black sagebrush, sickle saltbush, four wing saltbush, (or other appropriate shrub) for fall/winter grazing in any pasture evaluated by this SD in the Duckwater Allotment. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.

4. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

Allotment Summary (AUMs)

Allotment	Livestock Kind	Active Use	Suspended Non-Use	Voluntary Nonuse	Total Permitted Use	Exchange of Use
00701 Duckwater	Cattle	3,519	6,256	790	10,565	658
00701 Duckwater	Sheep	66	0	0	66	0

Terms and Conditions of Authorized Use – Duckwater Shoshone Tribe – Duckwater Allotment

In accordance with 43 CFR 4130.3-1, cattle grazing use would be authorized as follows. These terms and conditions would be included in the term grazing permit for the Duckwater Shoshone Tribe for a period not to exceed ten years.

Cattle grazing use is authorized in five use areas of the Duckwater Allotment, which are:
1. Bull Corner/Poison Patch Use Area
2. Duckwater Hills Use Area
3. Pancake East Bench/Duckwater Valley Use Area
4. Pogues Station Use Area
5. North Sand Springs Valley Use Area

The number and kind of livestock, season-of-use and permitted use will be as follows on the Duckwater Allotment:

ANNUAL GRAZING USE		
Livestock Number/Kind	Permitted Use AUMs (Active AUMs)	Season-of-Use
400 Cattle	223	5/15 – 5/31
600 Cattle	2407	6/1 – 9/30
	Rest	10/1 - 10/31
400 Cattle	1986	11/01 – 03/31
	Total = 4,616 AUMs	

Deviations from these livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple use resource objectives for the Duckwater Allotment. Flexibility in areas of use within use areas and stocking level flexibility by use area may be allowed on an annual basis, however permitted use will not exceed 4,616 AUMs. Stocking levels by use area will be determined by BLM and the Tribe on an annual basis and will be based on monitoring information.

Terms and Conditions:
In accordance with 43 CFR 4130.3-2, the following terms and conditions will be included in the grazing permit for the Duckwater Shoshone Tribe in the Duckwater Allotment:

1. A rotational grazing system is authorized whereby the Tribe's north area would be grazed in even years and the south area grazed in odd years.
2. By maintaining some grazing in sagebrush rangelands in the higher elevation areas such as Red Rock Summit as late spring/summer, after the critical growth period and after seed ripe of cool season perennial bunchgrasses, would take pressure off the salt desert shrub range sites. The salt desert shrub range is best used for maintenance of cattle during winter. Establish temporary water haul sites in higher elevation sagebrush areas for summer cattle grazing after seed ripe of key native grasses.

3. Water haul sites will be established or relocated a minimum of ½ mile away from sensitive winterfat dominant salt desert shrub sites. Base placement on site specific assessment and characteristics such as riparian, topography, cultural, special status species, etc. (from the Resource Program Best Management Practices (Ely District BLM ROD/RMP – August, 2008) Livestock Grazing Page A. 1-9.
BLM and the Tribe will cooperate to establish temporary water hauling to portions of all use areas to distribute spring, summer, or winter grazing. New sites could be established. 3. The current water haul site located in the main Poison Wash at T. 14N., Range 55E., Section 12 shall be moved to a new location at least 0.5 miles away from the winterfat dominant wash.
4. The Duckwater Shoshone Tribe and BLM will cooperate on range improvement projects to construct spring exclosures around McClure Spring and Young Florio Spring. Water will be piped outside the exclosures for livestock, wild horses, and wildlife. A cooperative agreement will be prepared and signed for maintenance of the exclosures. Maintenance will be assigned to the Tribe. Until such time as these range improvements are constructed, the Tribe will herd cattle away from these riparian sources when cattle are authorized to graze the Pancake East Bench/Duckwater Valley Use Area in order to maintain the riparian objective of moderate use (50% or less for spring/summer use) on key riparian grasses, shrubs, or trees.
5. The South Sand Springs Valley Use Area will continue to be closed to cattle grazing during the period of the new grazing agreement due to continued degraded forage conditions and limited forage productivity and availability.
6 BLM and the Tribe could cooperate on a vegetation treatment project in suitable higher elevation areas where pinyon and juniper trees have encroached on sagbrush habitat, or where sagebrush dominates with or without an appropriate herbaceous understory. Other stake holders or cooperators could be sought for help with funding. Water is a limiting facor. Water hauls may need to be authorized. A fenced treatment may or may not be an option. Treatment could include prescribed burning, mechanical treatment, or thinning. The treatment would benefit watershed values, livestock, wild horses, and wildlife.
7. The following grazing management option can be applied on an annual basis, if appropriate. This option is to address current range conditions on the salt desert shrub ranges for spring grazing. The annual application of this option will be discussed and agreed upon cooperatively with the Tribe and BLM range staff. Other viable options that arise may also be implemented to achieve desirable range conditions.

- Option 1— Cattle may be turned out to public lands as early as March 15, and removed by May 1. Cattle would then return to public lands June 1.

Allotment Summary (AUMs) – Duckwater Shoshone Tribe

Allotment	Livestock Kind	Active Use	Suspended Non-Use	Voluntary Nonuse	Total Permitted Use
00701 Duckwater	Cattle	4,616	11,121	2,799	18,536

Duckwater Allotment - Allowable Use Levels – all Herbivores
1. An allowable use level will be established as 40% of the current year's growth by weight for any spring use (3/1 – 5/31) of the key native cool season perennial bunchgrass species Indian ricegrass, needleandthread, bluebunch wheatgrass, or bottlebrush squirreltail (or other cool

season native perennial bunchgrass determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment. An allowable use level will be established as 50% of the current year's growth by weight for yearlong use of these species. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.

2. An allowable use level will be established as 35% of the current year's growth by weight for any critical growing season use (generally 3/1 – 4/15) of the key shrub winterfat. An allowable use level will be established as 50% of the current year's growth by weight for any total season spring use (3/1 – 5/31) of the key shrubs winterfat, sickle saltbush, black sagebrush, four wing saltbush, (or other shrub determined to be a key species for livestock, wild horses, or wildlife) in any native pasture evaluated by this SD in the Duckwater Allotment.

3. An allowable use level will be established as 60% of the current year's growth by weight for winterfat, black sagebrush, sickle saltbush, four wing saltbush, (or other appropriate shrub) for fall/winter grazing in any pasture evaluated by this SD in the Duckwater Allotment. Utilization will be measured at established key grazing areas or other sites representative of the dominant vegetation in the allotment.

4. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

ADDITIONAL STIPULATIONS COMMON TO ALL GRAZING ALLOTMENTS:

1. Livestock numbers identified in the Term Grazing Permit are a function of seasons of use and permitted use. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.
2. Deviations from specified grazing use dates will be allowed when consistent with multiple-use objectives. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.
3. The authorized officer is requiring that an actual use report (form 4130-5) be submitted within 15 days after completing your annual grazing use.
4. Grazing use will be in accordance with the Standards and Guidelines for Grazing Administration. The Standards and Guidelines have been developed by the respective Resource Advisory Council and approved by the Secretary of the Interior on February 12, 1997. Grazing use will also be in accordance with 43 CFR Subpart 4180 - Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.
5. If future monitoring data indicates that Standards and Guidelines for Grazing Administration are not being met, the permit will be reissued subject to revised terms and conditions.
6. Pursuant to 43 CFR 10.4 (G) the holder of this authorization must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined at 43 CFR 10.2). Further, pursuant to 43 CFR 10.4 (C) and (D), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.
7. The permittee must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of any hazardous or solid wastes as defined in 40 CFR Part 261.
8. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.
9. When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.

Appendix III
RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS
Term Grazing Permit Renewal for Tom & Ellen Gardner
Duckwater Allotment
Nye County & White Pine County, Nevada

On November 4th, 2008 a Noxious & Invasive Weed Risk Assessment was completed for the term grazing permit renewal for Tom & Ellen Gardner on the Duckwater Allotment in Nye and White Pine Counties, NV. The current term permit is issued for the period 11/01/2007 to 10/31/2016. This is a sheep permit with an active permitted use of 2,814 AUMs and a season of use from 11/01 – 04/15. The permit is for 4 use areas of the Duckwater Allotment – (Bull Corner/Poison Patch, Pogues Station, Little Smoky Valley, and Pancake East Bench/Duckwater Valley Use Areas) together encompass approximately 368,000 acres. The issuance of the new term grazing permit could be for a period up to ten years. The grazing permit area occurs within both White Pine and Nye Counties, Nevada and is situated in the west portion of the Ely District BLM, approximately 50 to 65 miles west of Ely, Nevada.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. The following species are found within the boundaries of the use areas for this permit in the Duckwater Allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Cirsium vulgare	Bull thistle
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

The following species are found along roads and drainages leading to the allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cirsium vulgare	Bull thistle
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

These use areas of the Duckwater Allotment were last inventoried for noxious weeds in 2003 and 2005. It should be noted that these use areas border the BLM Battle Mountain District and no weed inventory data for this District is currently available. While not officially documented the following non-native invasive weeds probably occur in or around both allotments: cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Russian olive (*Elaeagnus angustifolia*), halogeton (*Halogeton glomeratus*), horehound (*Marrubium vulgare*), and Russian thistle (*Salsola kali*).

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed

	species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (4) at the present time. The proposed action could increase the populations of the noxious and invasive weeds already within the use areas and could aid in the introduction of weeds from surrounding areas. Within the use areas, watering and salt block sites are of particular concern of new weed infestations due to the concentration of livestock around those sites and the amount of ground disturbance associated with that.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as Moderate (7) at the present time. If new weed infestations establish within the use areas this could have an adverse impact those native plant communities however, since there are many weed infestations currently within the allotments, those impacts would be limited. Also, any increase of cheatgrass could alter the fire regime in the area.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

For this project, the Risk Rating is Moderate (32). This indicates that the project can proceed as planned as long as the following measures are followed:

- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for feed or bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.
- Prior to entering public lands, the BLM will provide information regarding noxious weed management and identification to the permit holders affiliated with the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- The range specialist for the allotments will include weed detection into project compliance inspection activities. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.

- Grazing will be conducted in compliance with the Ely District BLM noxious weed schedules. The scheduled procedures can significantly and effectively reduce noxious weed spread or introduction into the project area.
- When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- Any newly established populations of noxious/invasive weeds discovered will be communicated to the Ely District Noxious and Invasive Weeds Coordinator for treatment.

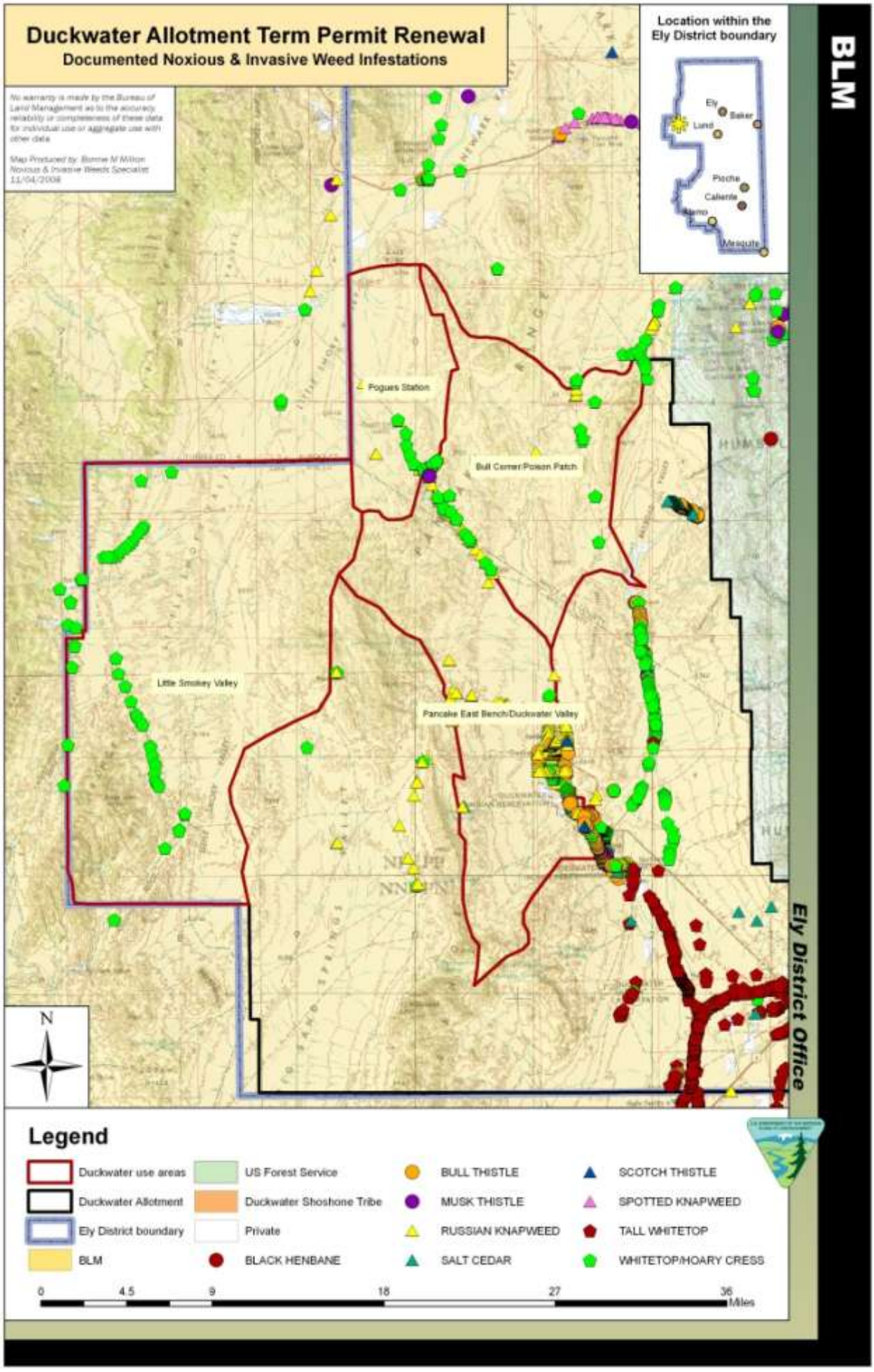
Reviewed by: /s/ *Bonnie Million* 11/04/2008

Bonnie M. Million Date

Ely District Noxious & Invasive Weeds Coordinator

Duckwater Allotment Term Permit Renewal

Documented Noxious & Invasive Weed Infestations



RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Term Grazing Permit Renewal for the Duckwater Shoshone Tribe Duckwater Allotment Nye County & White Pine County, Nevada

On November 4th, 2008 a Noxious & Invasive Weed Risk Assessment was completed for the term grazing permit renewal for the Duckwater Shoshone Tribe on the Duckwater Allotment in Nye and White Pine Counties, NV. The current term permit is issued for the period 3/01/2007 to 2/28/2017. This is a cattle permit with an active permitted use of 4,693 AUMs and a season of use from 04/15 – 01/30. The permit is for 6 use areas of the Duckwater Allotment – (Bull Corner/Poison Patch, Pogues Station, North Sand Springs Valley, Pancake East Bench/Duckwater Valley, Duckwater Hills, and South Sand Springs Valley Use Areas) together encompass approximately 322,000 acres. The issuance of the new term grazing permit could be for a period up to ten years. The grazing permit area occurs within both White Pine and Nye Counties, Nevada and is situated in the west portion of the Ely District BLM, approximately 50 to 65 miles west of Ely, Nevada.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. The following species are found within the boundaries of the use areas for this permit in the Duckwater Allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Cirsium vulgare	Bull thistle
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

The following species are found along roads and drainages leading to the allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cirsium vulgare	Bull thistle
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

These use areas of the Duckwater Allotment were last inventoried for noxious weeds in 2003 and 2005. It should be noted that these use areas border the BLM Battle Mountain District and no weed inventory data for this District is currently available. While not officially documented the following non-native invasive weeds probably occur in or around both allotments: cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Russian olive (*Elaeagnus angustifolia*), halogeton (*Halogeton glomeratus*), horehound (*Marrubium vulgare*), and Russian thistle (*Salsola kali*).

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are

	essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (4) at the present time. The proposed action could increase the populations of the noxious and invasive weeds already within the use areas and could aid in the introduction of weeds from surrounding areas. Within the use areas, watering and salt block sites are of particular concern of new weed infestations due to the concentration of livestock around those sites and the amount of ground disturbance associated with that.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as Moderate (7) at the present time. If new weed infestations establish within the use areas this could have an adverse impact those native plant communities however, since there are many weed infestations currently within the allotments, those impacts would be limited. Also, any increase of cheatgrass could alter the fire regime in the area.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

For this project, the Risk Rating is Moderate (32). This indicates that the project can proceed as planned as long as the following measures are followed:

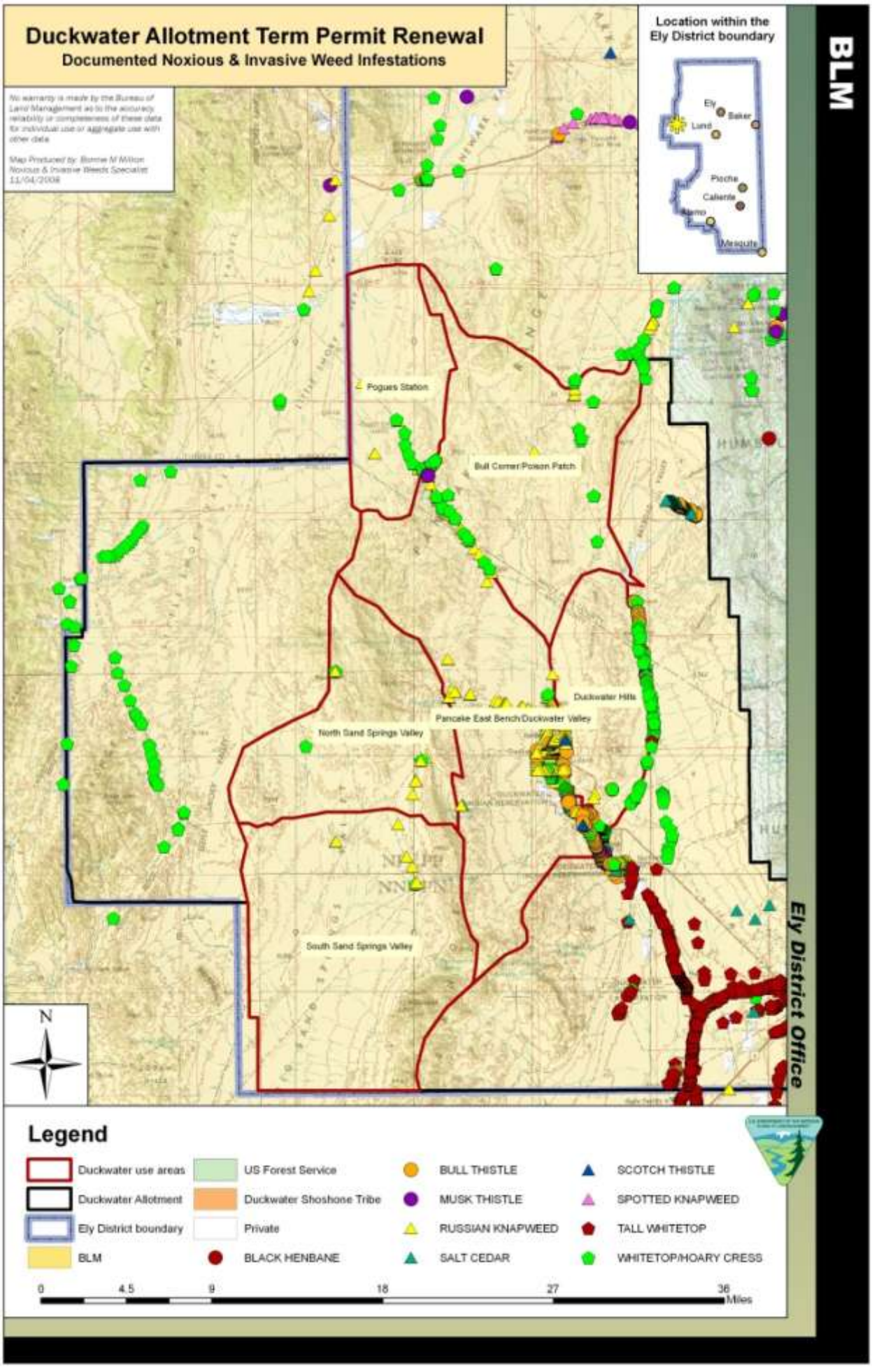
- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for feed or bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.
- Prior to entering public lands, the BLM will provide information regarding noxious weed management and identification to the permit holders affiliated with the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- The range specialist for the allotments will include weed detection into project compliance inspection activities. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- Grazing will be conducted in compliance with the Ely District BLM noxious weed schedules. The scheduled procedures can significantly and effectively reduce noxious weed spread or introduction into the project area.

- When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- Any newly established populations of noxious/invasive weeds discovered will be communicated to the Ely District Noxious and Invasive Weeds Coordinator for treatment.

Reviewed by: /s/ *Bonnie Million* 11/04/2008

Bonnie M. Million Date

Ely District Noxious & Invasive Weeds Coordinator


Duckwater Allotment Term Permit Renewal
Documented Noxious & Invasive Weed Infestations
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
Map Produced by: Bonnie M Milton
Noxious & Invasive Weeds Specialist
11/04/2008
Location within the Ely District boundary
Ely
Baker
Lund
Pioche
Caliente
Alamo
Mesquite
Pogues Station
Bull Corner/Poison Patch
Duckwater Hills
Pancake East Bench/Duckwater Valley
North Sand Springs Valley
South Sand Springs Valley
N
BLM
Ely District Office
Legend
Duckwater use areas
Duckwater Allotment
Ely District boundary
BLM
US Forest Service
Duckwater Shoshone Tribe
Private
BLACK HENBANE
BULL THISTLE
MUSK THISTLE
RUSSIAN KNAPWEED
SALT CEDAR
SCOTCH THISTLE
SPOTTED KNAPWEED
TALL WHITETOP
WHITETOP/HOARY CRESS
0
4.5
9
18
27
36
Miles

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Term Grazing Permit Renewal for Duckwater Cattle Company
Duckwater & Monte Cristo Allotments
Nye & White Pine County, Nevada

On November 4th, 2008 a Noxious & Invasive Weed Risk Assessment was completed for the term grazing permit renewal for the Duckwater Cattle Co. for the Duckwater and Monte Cristo Allotments in Nye and White Pine Counties, NV. The current term permit is issued for the period 06/09/2005 to 06/08/2015. This is a cattle and sheep permit with a total grazing preference of 10,631 animal unit months (AUMs) on the Duckwater Allotment and 1,129 AUMs on the Monte Cristo Allotment. Of these on the Duckwater Allotment, 4,375 AUMs are active and 6,256 AUMs are suspended nonuse. On the Monte Cristo Allotment, 1,129 AUMs are active and 0 AUMs are suspended nonuse. The following table outlines what the current term permit authorizes:

Allotment/Use Area	Number & Kind of Livestock	Use Period	AUMS
Duckwater/Bull Creek	800 Cattle	03/15 to 05/15	1631
Duckwater/Green Springs	800 Cattle	05/23 to 06/20	763
Duckwater/Pancake East	54 Sheep	06/01 to 11/30	65
Duckwater/Green Springs	335 Cattle	09/19 to 09/30	132
Duckwater/Bull Creek	330 Cattle	11/15 to 01/31	846
Duckwater/Bull Corner	322 Cattle	11/15 to 01/31	826
Duckwater/Pancake East	43 Cattle	11/15 to 01/31	110
Monte Cristo	582 Cattle	06/21 to 09/18	1722

The issuance of the new term grazing permit could be for a period up to ten years. The Duckwater Allotment encompasses approximately 807,662 public land acres. The allotment occurs within White Pine County and Nye County. The Monte Cristo Allotment encompasses approximately 6,138 public land acres. The allotment occurs entirely within White Pine County, and is situated approximately 40 miles west of Ely, Nevada.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. The following species are found within the boundaries of the use areas for this permit in the Duckwater Allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Cirsium vulgare	Bull thistle
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

The following species are found within the boundaries of the Monte Cristo Allotment:

Acroptilon repens	Russian knapweed
Lepidium draba	Hoary cress

The following species are found along roads and drainages leading to both allotments:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

These areas were last inventoried for noxious weeds in 2003 and 2005. It should be noted that these use areas are within 3 miles of the BLM Battle Mountain District and no weed inventory data for this District is currently available. While not officially documented the following non-native invasive weeds probably occur in or around both allotments: cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Russian olive (*Elaeagnus angustifolia*), halogeton (*Halogeton glomeratus*), horehound (*Marrubium vulgare*), and Russian thistle (*Salsola kali*).

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (4) at the present time. The proposed action could increase the populations of the noxious and invasive weeds already within the allotments and could aid in the introduction of weeds from surrounding areas. Within the allotments, watering and salt block sites are of particular concern of new weed infestations due to the concentration of livestock around those sites and the amount of ground disturbance associated with that.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as Moderate (7) at the present time. If new weed infestations establish within the allotments this could have an adverse impact those native plant communities however, since there are many weed infestations currently within the allotments, those impacts would be limited. Also, any increase of cheatgrass could alter the fire regime in the area.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated

	infestations.

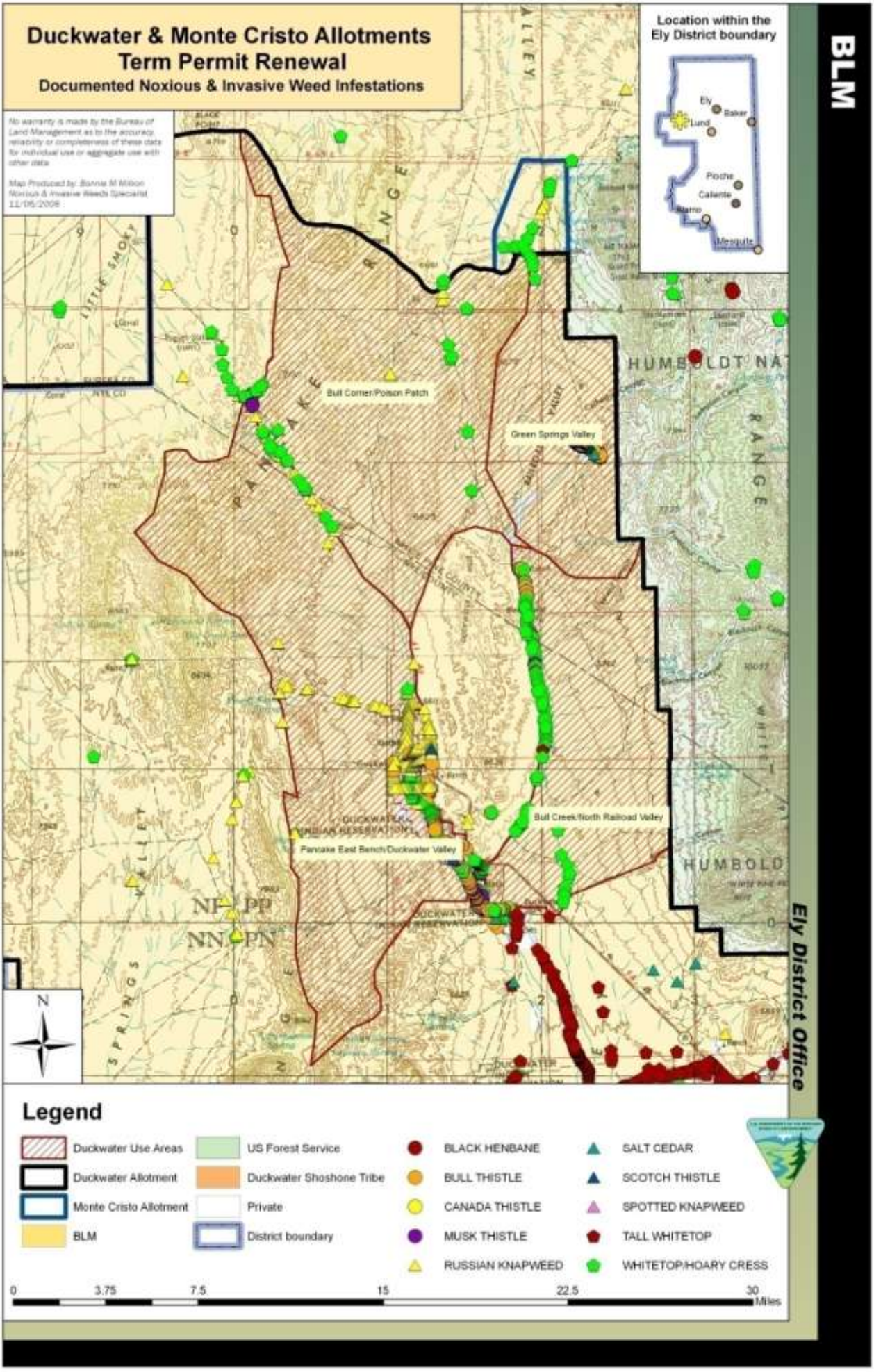
For this project, the Risk Rating is Moderate (32). This indicates that the project can proceed as planned as long as the following measures are followed:

- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for feed or bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.
- Prior to entering public lands, the BLM will provide information regarding noxious weed management and identification to the permit holders affiliated with the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- The range specialist for the allotments will include weed detection into project compliance inspection activities. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- Grazing will be conducted in compliance with the Ely District BLM noxious weed schedules. The scheduled procedures can significantly and effectively reduce noxious weed spread or introduction into the project area.
- Control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- Any newly established populations of noxious/invasive weeds discovered will be communicated to the Ely District Noxious and Invasive Weeds Coordinator for treatment.

Reviewed by: /s/ *Bonnie Million* 11/6/2008

Bonnie M. Million Date

Ely District Noxious & Invasive Weeds Coordinator


Duckwater & Monte Cristo Allotments
Term Permit Renewal
Documented Noxious & Invasive Weed Infestations
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
Map Produced by: Bonnie M Million
Noxious & Invasive Weeds Specialist
11/05/2008
Location within the Ely District boundary
Ely
Baker
Lund
Preche
Caliente
Alamo
Mesquite
BLM
Ely District Office
Bull Corner/Poison Patch
Green Springs Valley
Bull Creek/North Railroad Valley
Pancake East Bench/Duckwater Valley
DUCKWATER INDIAN RESERVATION
HUMBOLDT NA
PANCAKE RANGE
DUCKWATER VALLEY
SPRINGS VALLEY
Legend
Duckwater Use Areas
Duckwater Allotment
Monte Cristo Allotment
BLM
US Forest Service
Duckwater Shoshone Tribe
Private
District boundary
BLACK HENBANE
BULL THISTLE
CANADA THISTLE
MUSK THISTLE
RUSSIAN KNAPWEED
SALT CEDAR
SCOTCH THISTLE
SPOTTED KNAPWEED
TALL WHITETOP
WHITETOP/HOARY CRESS
0
3.75
7.5
15
22.5
30
Miles

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Term Grazing Permit Renewal for Paris Livestock
Cold Creek, Corta, Duckwater, Newark, Railroad Pass, Sand Springs, South Pancake, & Warm Springs Trail Allotments
Nye & White Pine County, Nevada

On November 6th, 2008 a Noxious & Invasive Weed Risk Assessment was completed for the term grazing permit renewal for Paris Livestock for the Cold Creek, Corta, Duckwater, Newark, Railroad Pass, Sand Springs, South Pancake, and Warm Springs Trail Allotments in Nye and White Pine Counties, NV. The current term permit is issued for the period 10/15/2006 to 10/14/2016. The following table outlines what the current term permit authorizes.

Allotment/Pasture	Number & Kind of Livestock	Use Period	AUMS
Sand Springs	934 Sheep	11/01 to 03/31	927
	1198 Sheep	11/01 to 03/31	1190
Railroad Pass	467 Sheep	04/05 to 11/15	691
Cold Creek	1182 Sheep	04/15 to 4/30	124
	1200 Sheep	11/01 to 11/15	118
Newark	1642 Sheep	04/01 to 04/30	324
	1642 Sheep	11/01 to 11/30	324
South Pancake	2268 Sheep	03/15 to 04/30	701
	1114 Sheep	11/15 to 01/15	454
Warm Springs Trail	2750 Sheep	04/15 to 05/01	307
	2754 Sheep	11/15 to 12/01	308
Duckwater	1572 Sheep	12/15 to 03/31	1106
	1122 Sheep	01/01 to 03/31	664
Corta	4850 Sheep	05/01 to 05/04	128
Railroad Pass/Corta Seeding	365 Sheep	04/05 to 11/15	540

Within the Duckwater Allotment the following use areas would be used: Bull Corner/Poison Patch, Little Smokey Valley, North Sand Springs Valley, Pancake East Bench/Duckwater Valley, Pogues Station, and South Sand Springs Valley. The issuance of the new term grazing permit could be for a period up to ten years. An evaluation of the range monitoring data and rangeland health will be conducted for the Cold Creek, Corta, Duckwater, Newark, Railroad Pass, Sand Springs, South Pancake, and Warm Springs Trail Allotments.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. The following species are found within the boundaries of the Cold Creek Allotment:

Carduus nutans	Musk thistle
Cirsium vulgare	Bull thistle
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle

The following species are found within the boundaries of the use areas for this permit in the Duckwater Allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Cirsium vulgare	Bull thistle
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop

Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

The following species are found within the boundaries of the Newark Allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cirsium vulgare	Bull thistle
Conium maculatum	Poison hemlock
Lepidium draba	Hoary cress
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

The following species are found within the boundaries of the Railroad Pass Allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cicuta maculata	Water hemlock
Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Euphorbia esula	Leafy spurge
Lepidium draba	Hoary cress
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

The following species is found within the boundaries of the South Pancake Allotment:

Lepidium draba	Hoary cress

The following species are found along the Warm Springs Trail Allotment:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress

The following species are found along roads and drainages leading to all allotments:

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cicuta maculate	Water hemlock
Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Conium maculatum	Poison hemlock
Euphorbia esula	Leafy spurge
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle

Tamarix spp. Salt cedar

These areas were last inventoried for noxious weeds in 2002, 2003 and 2005. It should be noted that these allotments border the BLM Battle Mountain or Elko Districts or, in the case of the Corta and Sand Springs Allotments, are entirely within them. No weed inventory data for these Districts is currently available. While not officially documented the following non-native invasive weeds probably occur in or around both allotments: cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Russian olive (*Elaeagnus angustifolia*), halogeton (*Halogeton glomeratus*), horehound (*Marrubium vulgare*), and Russian thistle (*Salsola kali*).

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (4) at the present time. The proposed action could increase the populations of the noxious and invasive weeds already within the allotments and could aid in the introduction of weeds from surrounding areas. Within the allotments, watering and salt block sites are of particular concern of new weed infestations due to the concentration of livestock around those sites and the amount of ground disturbance associated with that.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as Moderate (7) at the present time. If new weed infestations establish within the allotments this could have an adverse impact those native plant communities however, since there are many weed infestations currently within the allotments, those impacts would be limited. Also, any increase of cheatgrass could alter the fire regime in the area.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5

	consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

For this project, the Risk Rating is Moderate (32). This indicates that the project can proceed as planned as long as the following measures are followed:

- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for feed or bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.
- Prior to entering public lands, the BLM will provide information regarding noxious weed management and identification to the permit holders affiliated with the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- The range specialist for the allotments will include weed detection into project compliance inspection activities. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- Grazing will be conducted in compliance with the Ely District BLM noxious weed schedules. The scheduled procedures can significantly and effectively reduce noxious weed spread or introduction into the project area.
- Control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- Any newly established populations of noxious/invasive weeds discovered will be communicated to the Ely District Noxious and Invasive Weeds Coordinator for treatment.

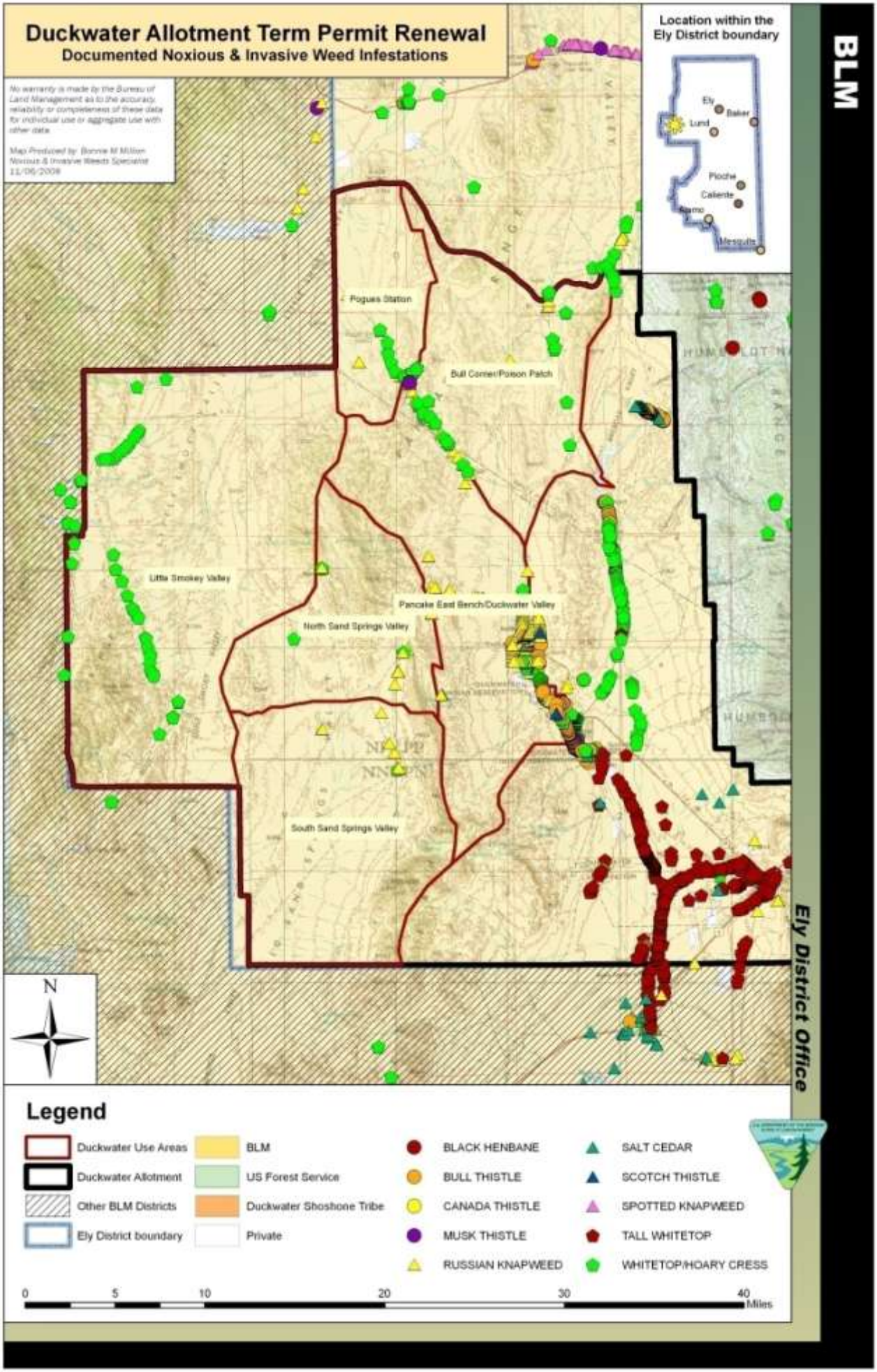
Reviewed by: /s/ *Bonnie Million* 11/6/2008

Bonnie M. Million Date

Ely District Noxious & Invasive Weeds Coordinator

Duckwater Allotment Term Permit Renewal

Documented Noxious & Invasive Weed Infestations



APPENDIX IV
RECOMMENDED PRACTICES - STATE AND TRANSITION MODEL

Management strategies to maintain the "shrubby and herbaceous state" for eight different types of rangeland ecological sites in MLRA 28B where winterfat and Indian ricegrass are the dominant vegetation of the salt desert shrub range.

Winter is the best season for livestock grazing. Limit grazing to the dormant season or control grazing during the growing season to ensure herbaceous grasses and forbs or palatable shrubs are not grazed excessively or repeatedly while growing. With excessive or persistent season long grazing by grass-preferring herbivores during the herbaceous growing season, the site can cross a threshold to a Shrub Dominant State where deep-rooted grasses and other palatable herbaceous species are almost completely absent. If this does not happen and the area remains in the Shrubby and Herbaceous State, long-term grazing by shrub-preferring herbivores or in the non-growing season can shift the plant community to increased herbaceous vegetation. Management to maintain this Shrubby and Herbaceous State is often much more cost effective than management to return to this state once a threshold has been crossed.

SHRUB-DOMINANT STATE
Description:
Herbaceous understory species diversity has decreased across a threshold level with abusive grazing, while winterfat and other shrub cover and density remain. Deep-rooted perennial grasses and forbs are largely absent. Plant community is dominated by winterfat. Shallow-rooted perennial grasses are often diminished from the Shrubby and Herbaceous State levels or mostly absent. Thereafter winterfat occurs as a monoculture or dominates a shrubs-only community type.

Successional trajectories:
Loss of deep-rooted perennial grasses does not cause herbivores to avoid this state. Livestock, wild horse, and wildlife grazing continues to influence winterfat vigor and species composition of remaining species. Although winterfat tolerates grazing quite well during the dormant season, it can be removed by even moderate growing season grazing. This leaves the site open to the increase of unpalatable or invasive plants and/or the site suffers soil erosion due to the excess of bare ground. The soil disturbance associated with abusive grazing also accelerates soil erosion.

Management strategies to return to Herbaceous and Shrub State:
Winter, or the dormant season is the best season to graze this state. However, dormant season grazing, or total removal of grazing pressure, will not return native deep-rooted grasses. This requires seeding of deep-rooted grasses and additional measures to return (cross threshold) to Herbaceous and Shrubby State because seed sources have been lost. Apply re-seeding operations in conjunction with shrub thinning measures. Shrub thinning measures could include, herbicide, mechanical, or shrub consuming herbivores. Considering the harsh nature of the site, the susceptibility of the site to altered site potential due to soil erosion, and the resource value of winterfat for many herbivores, only vegetation management methods that minimize soil disturbance and retain winterfat should be considered and then used only with great caution. Investigate possibility of re-seeding and establishing understory species several growing seasons prior to implementing shrub-thinning measures. Due to the great palatability and nutritional quality of the dominant shrub, winterfat, shrub control and grass seeding is rarely practiced.

WITH EXOTIC PLANTS AND/OR INVASIVE WEEDS PRESENT

SHRUBBY AND HERBACEOUS STATE
Description:
Plant community dominated by winterfat and a mix of other shrubs, fourwing salt bush, shadscale, spiny hop sage and bud sage with a relatively productive understory mix of deep and shallow rooted grasses, especially Indian ricegrass and bottlebrush squirreltail, and forbs. Although cheatgrass, Halogeton, and other annual weeds may be present they are not dominant.

Successional trajectories:
Annual shrub production and the amount and species of herbaceous vegetation varies in response to weather, disease and insect outbreaks, and rarely fire. Although cheatgrass is present and varies by year, it does not dominate the understory under normal circumstances.

Management strategies to maintain state:

On this type, the best season for livestock grazing is winter. Limit grazing to the dormant season or control grazing during the herbaceous growing season to ensure native perennial herbaceous plants are not grazed excessively or repeatedly. Grazing at the late-winter and early spring season when cheatgrass is growing is preferred if grazing ceases before the early growing season of perennial grasses to ensure that soil moisture remains for their growth or recovery. With excessive, long-term grazing by grass-preferring herbivores during the herbaceous growing season, the type can cross a threshold to a Shrub Dominant State where deep-rooted grasses and other palatable herbaceous species are almost completely absent. If this does not happen and the vegetation remains in the Shrubby and Herbaceous State, long-term grazing by shrub-preferring herbivores or in the non-growing season can shift the plant community to increased herbaceous vegetation. Excessive or poorly timed grazing that stresses either the deep rooted grasses or the palatable shrubs leaves ecological resources available to cheatgrass, Halogeton, and other weeds and should be avoided. Management to maintain this Shrubby and Herbaceous State is often much more cost effective than management to return to this state once a threshold has been crossed.

Management strategies to maintain the herbaceous state for a loamy 5-8" shadscale/Indian ricegrass/bottlebrush squirreltail plant community (028BY017NV). This is a very typical salt desert shrub plant community.

Limit grazing to dormant season or control grazing dose during the growing season to ensure herbaceous plants are not grazed excessively. Limit shrub cover to 3 -10% of total. Intervene with prescription grazing. Shrub decrease can be fostered by relatively intense grazing using herbivores with shrub diet preferences.

Management strategies to return to the herbaceous state once the loamy 5-8" site has become shadscale dominant.

Apply shrub control measures in conjunction with re-seeding operations. Shrub control measures could include, herbicide, mechanical, or shrub consuming herbivores. Considering the harsh nature of the site, control methods that minimize soil disturbance should be considered first. Investigate possibility of re-seeding and establishing understory species several growing seasons prior to implementing shrub control measures. Shrub control without re-seeding may create open areas susceptible to invasion by undesirable species or major erosion events.

Management strategies to return to the herbaceous state once the loamy 5-8" site has become an annual plant state characterized by the presence of cheatgrass, annual mustards, and halogeton.

Apply cheatgrass and other annual plant control measures in conjunction with re-seeding operations. Cheatgrass control measures could include wildfire, controlled burn, herbicide, mechanical, or grazing. Consdieration of soil disturbance severity should be incuded in choice of control measure. Re-seeding treatments could include native perennial or non-native perennial species. Site stabilization may be a priority objective. If so, non-native perennial species may provide the best option.

Appendix V - List of References

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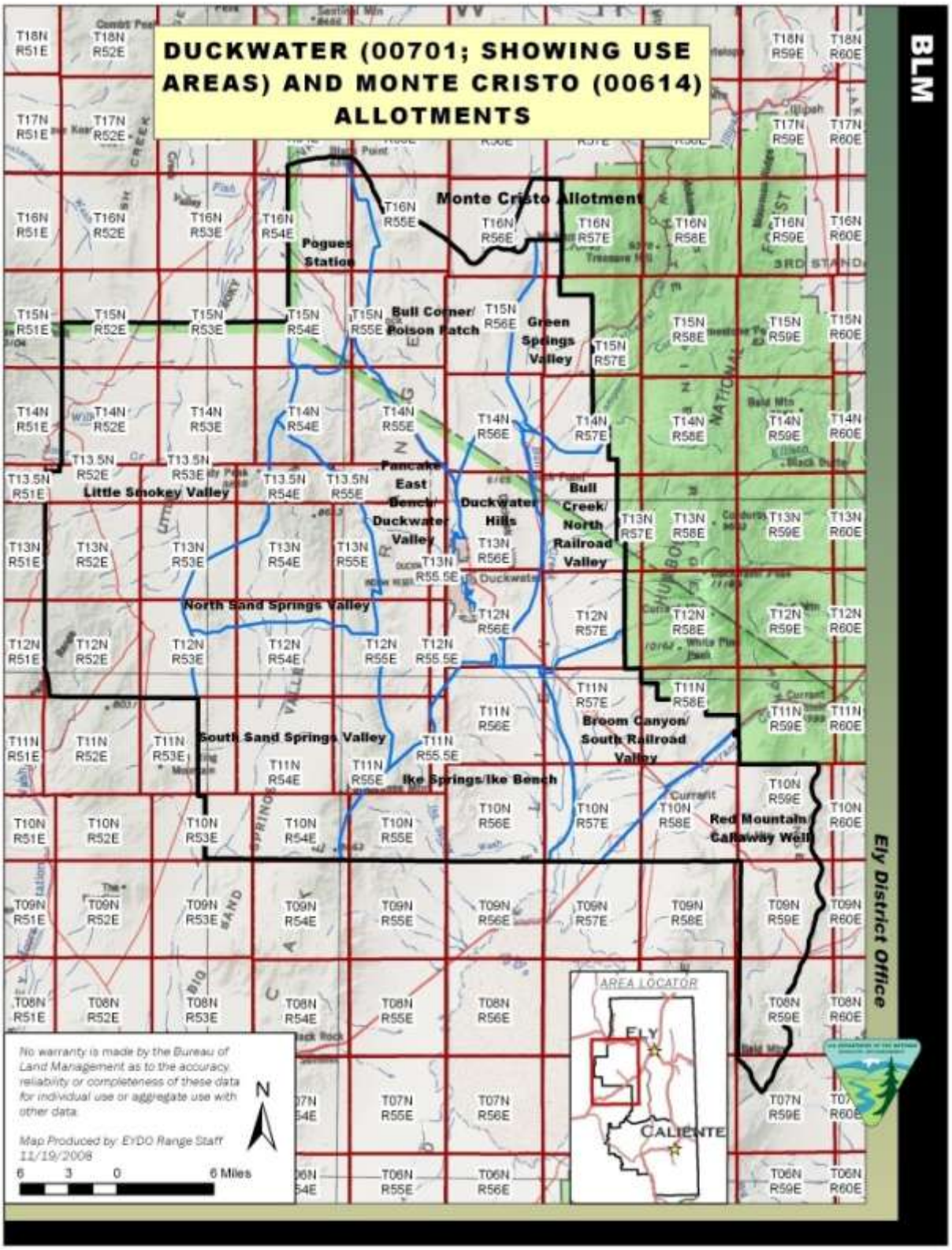
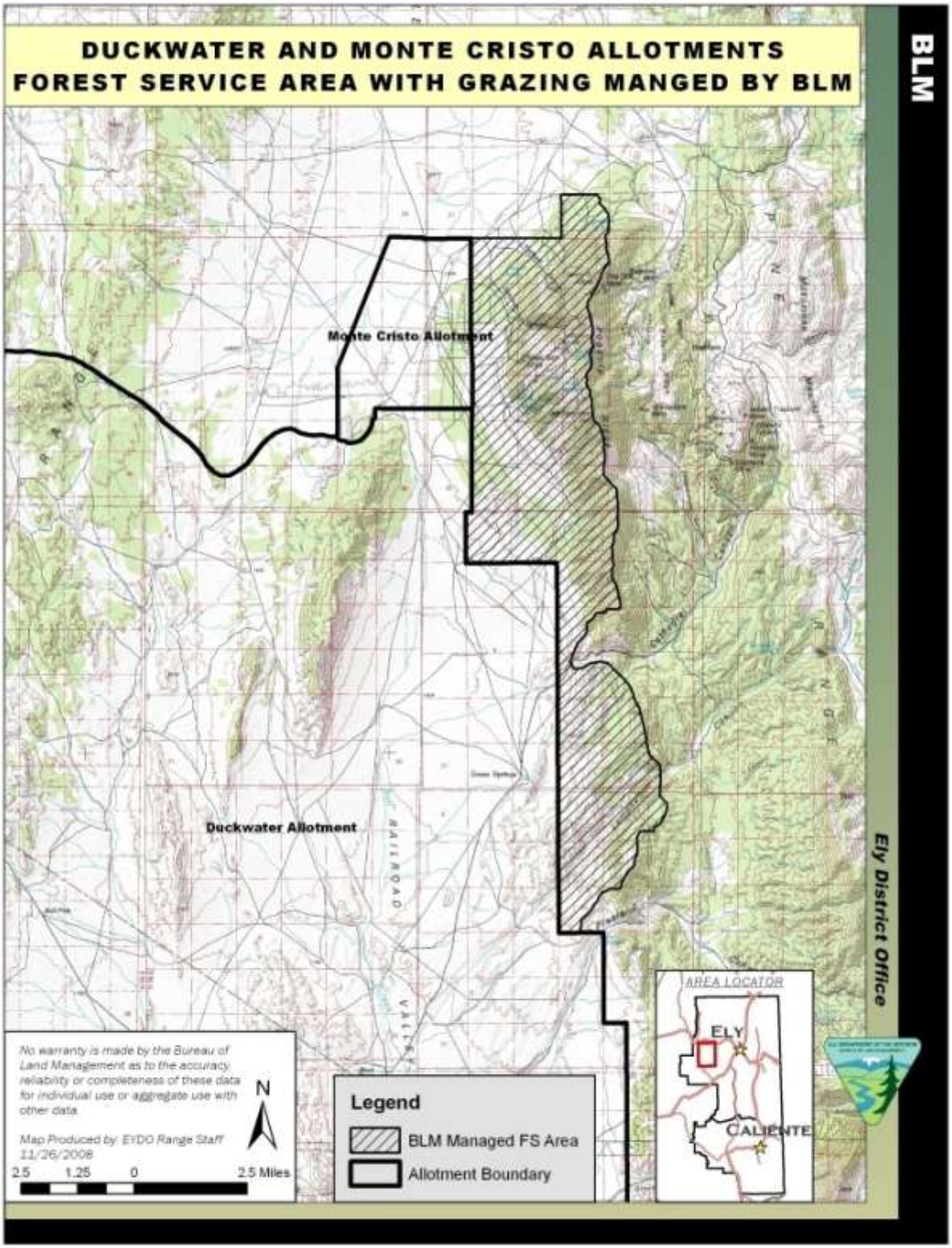
APPENDIX VI
MAPS




DUCKWATER AND MONTE CRISTO ALLOTMENTS
FOREST SERVICE AREA WITH GRAZING MANGED BY BLM
BLM
Monte Cristo Allotment
Duckwater Allotment
Ely District Office
AREA LOCATOR
ELY
CALIENTE
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
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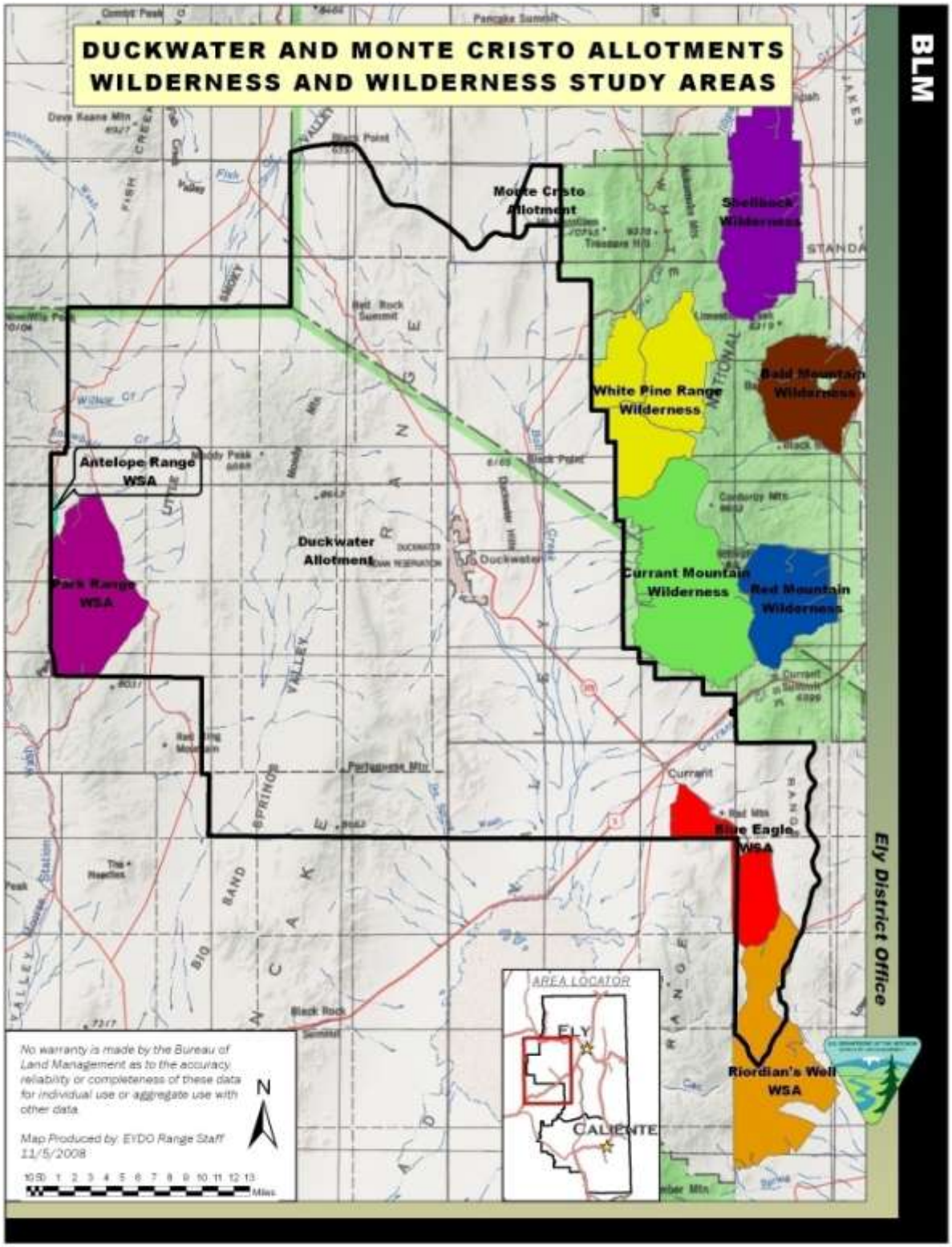
Legend
BLM Managed FS Area
Allotment Boundary


DUCKWATER AND MONTE CRISTO ALLOTMENTS
WILDERNESS AND WILDERNESS STUDY AREAS
BLM
Ely District Office
Monte Cristo Allotment
Shellback Wilderness
White Pine Range Wilderness
Bald Mountain Wilderness
Antelope Range WSA
Duckwater Allotment
Park Range WSA
Currant Mountain Wilderness
Red Mountain Wilderness
Blue Eagle WSA
Riordian's Well WSA
AREA LOCATOR
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CALIENTE
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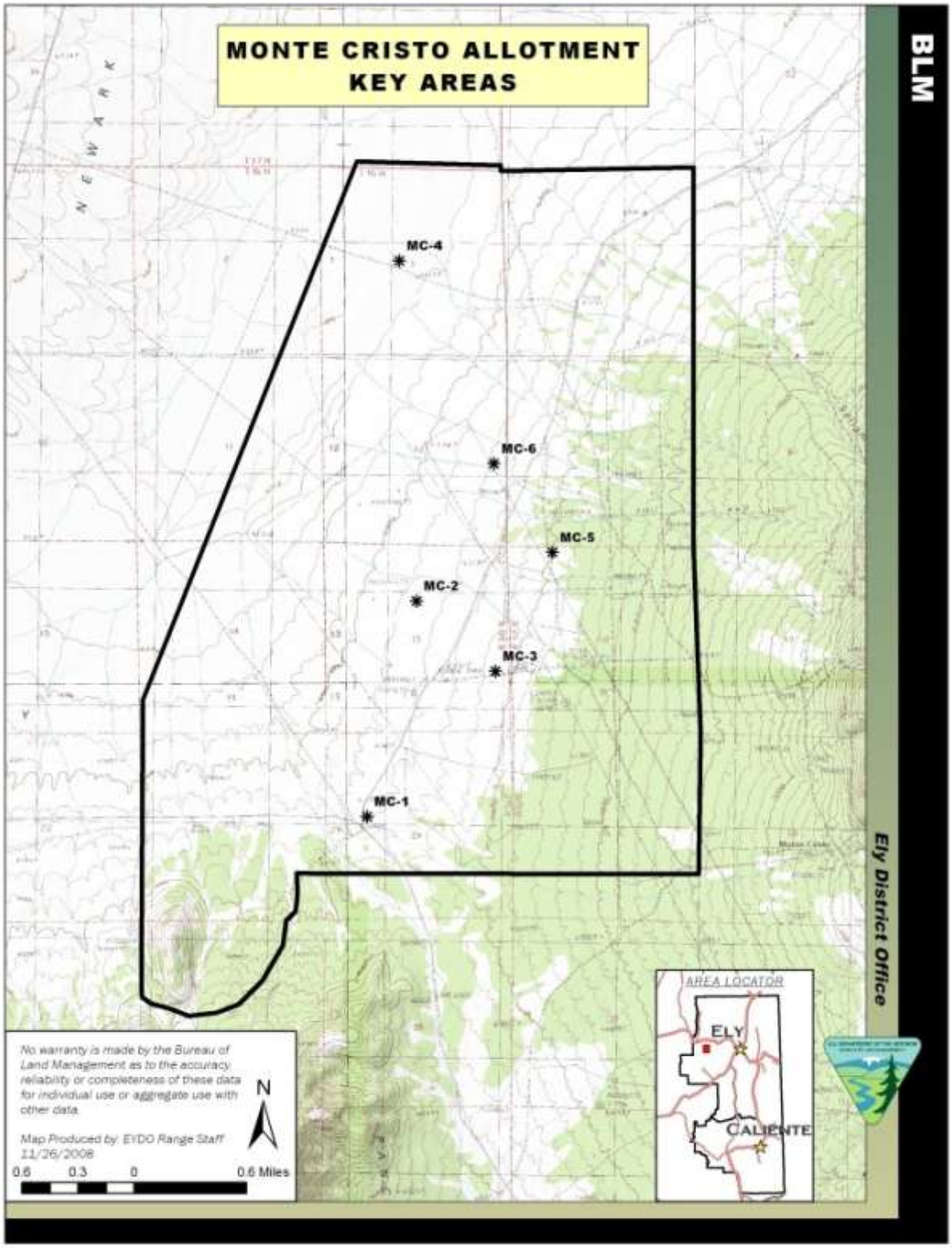
MONTE CRISTO ALLOTMENT
KEY AREAS
BLM
Ely District Office
MC-4
MC-6
MC-5
MC-2
MC-3
MC-1
AREA LOCATOR
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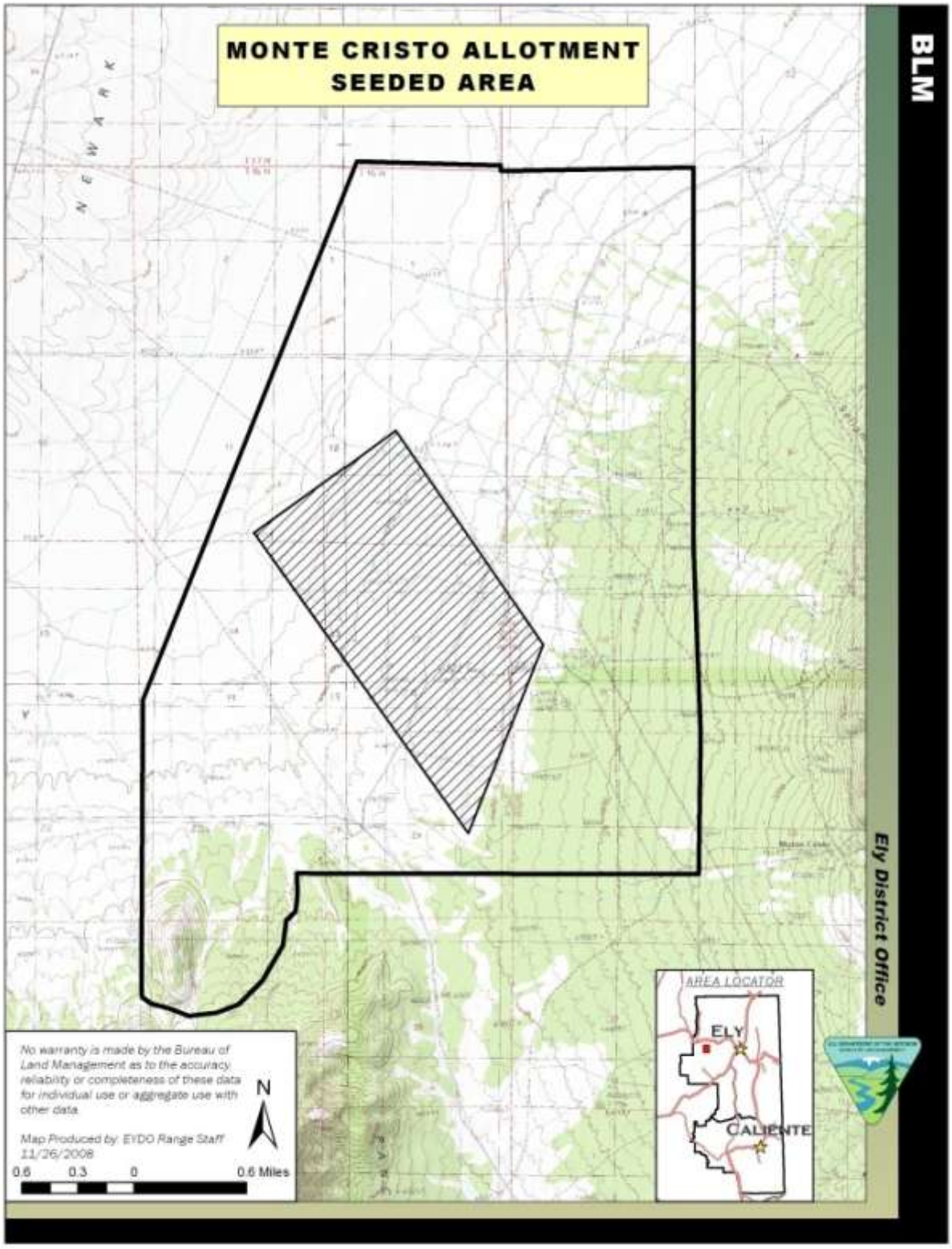
MONTE CRISTO ALLOTMENT
SEEDED AREA
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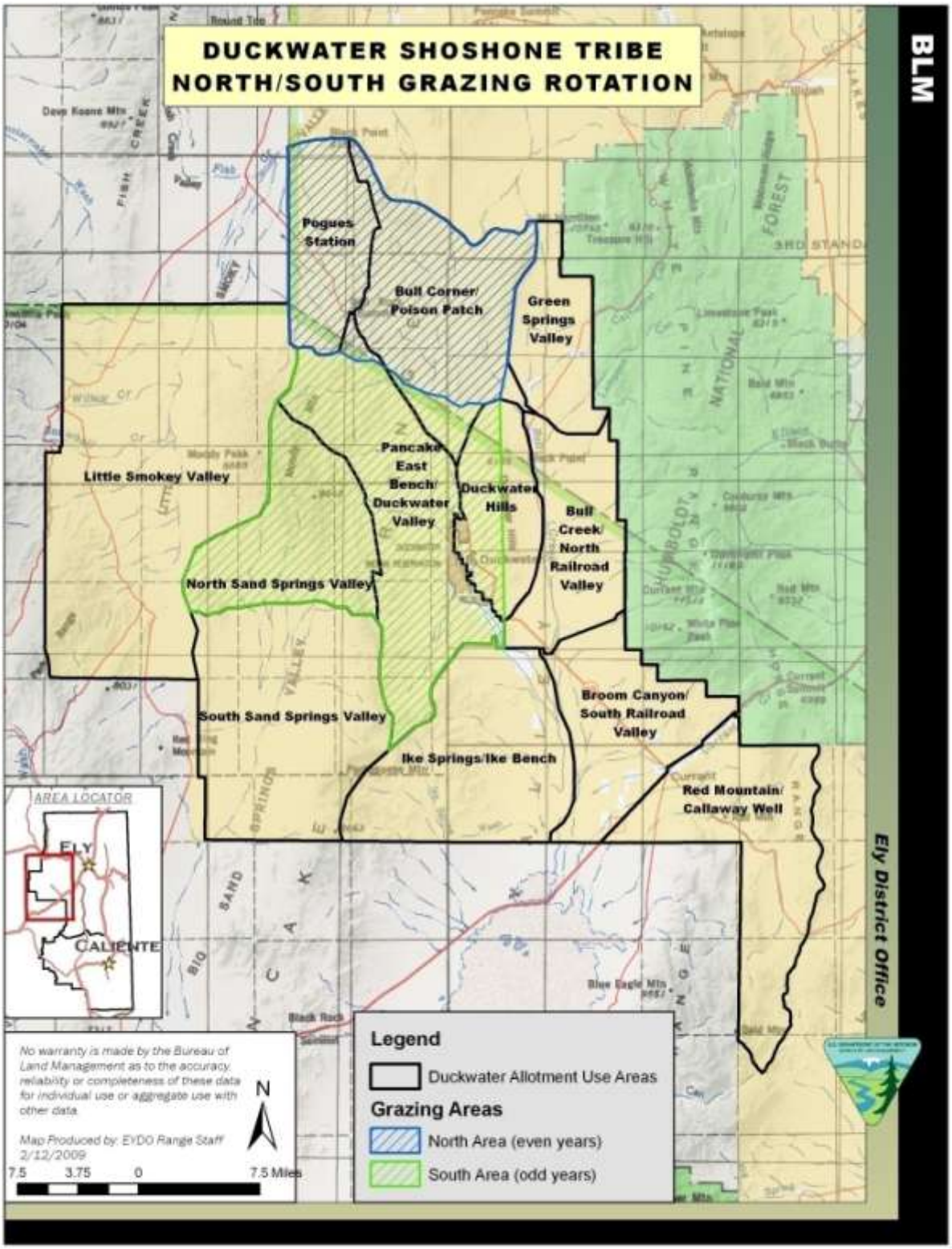
DUCKWATER SHOSHONE TRIBE
NORTH/SOUTH GRAZING ROTATION
BLM
Ely District Office
Pogues Station
Bull Corner/ Poison Patch
Green Springs Valley
Little Smokey Valley
Pancake/ East Bench/ Duckwater Valley
Duckwater Hills
Bull Creek/ North Railroad Valley
North Sand Springs Valley
South Sand Springs Valley
Broom Canyon/ South Railroad Valley
Ike Springs/Ike Bench
Red Mountain/ Callaway Well
AREA LOCATOR
ELY
CALIENTE
Legend
Duckwater Allotment Use Areas
Grazing Areas
North Area (even years)
South Area (odd years)
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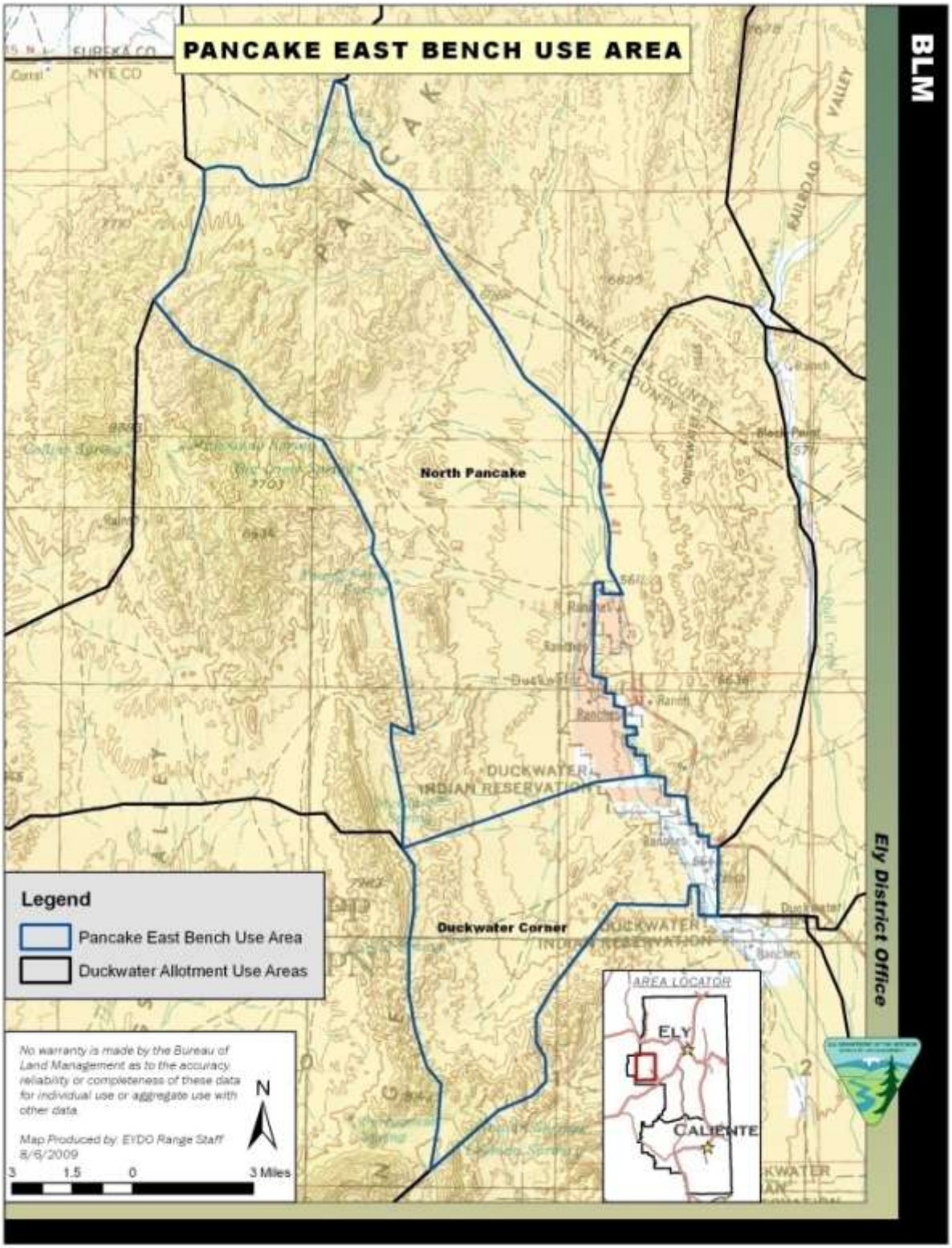
PANCAKE EAST BENCH USE AREA
BLM
North Pancake
Duckwater Corner
DUCKWATER INDIAN RESERVATION
Legend
Pancake East Bench Use Area
Duckwater Allotment Use Areas
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
Map Produced by: EYDO Range Staff 8/6/2009
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AREA LOCATOR
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CALIENTE
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